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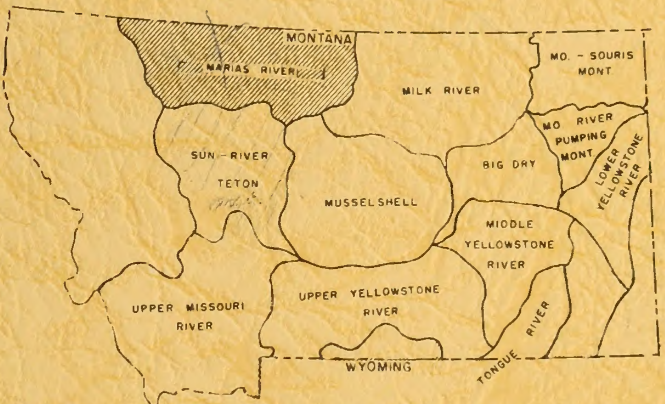
OF THE

PUBLIC DOMAIN LANDS

IN THE

MARIAS RIVER AREA



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A MISSOURI RIVER BASIN INVESTIGATION

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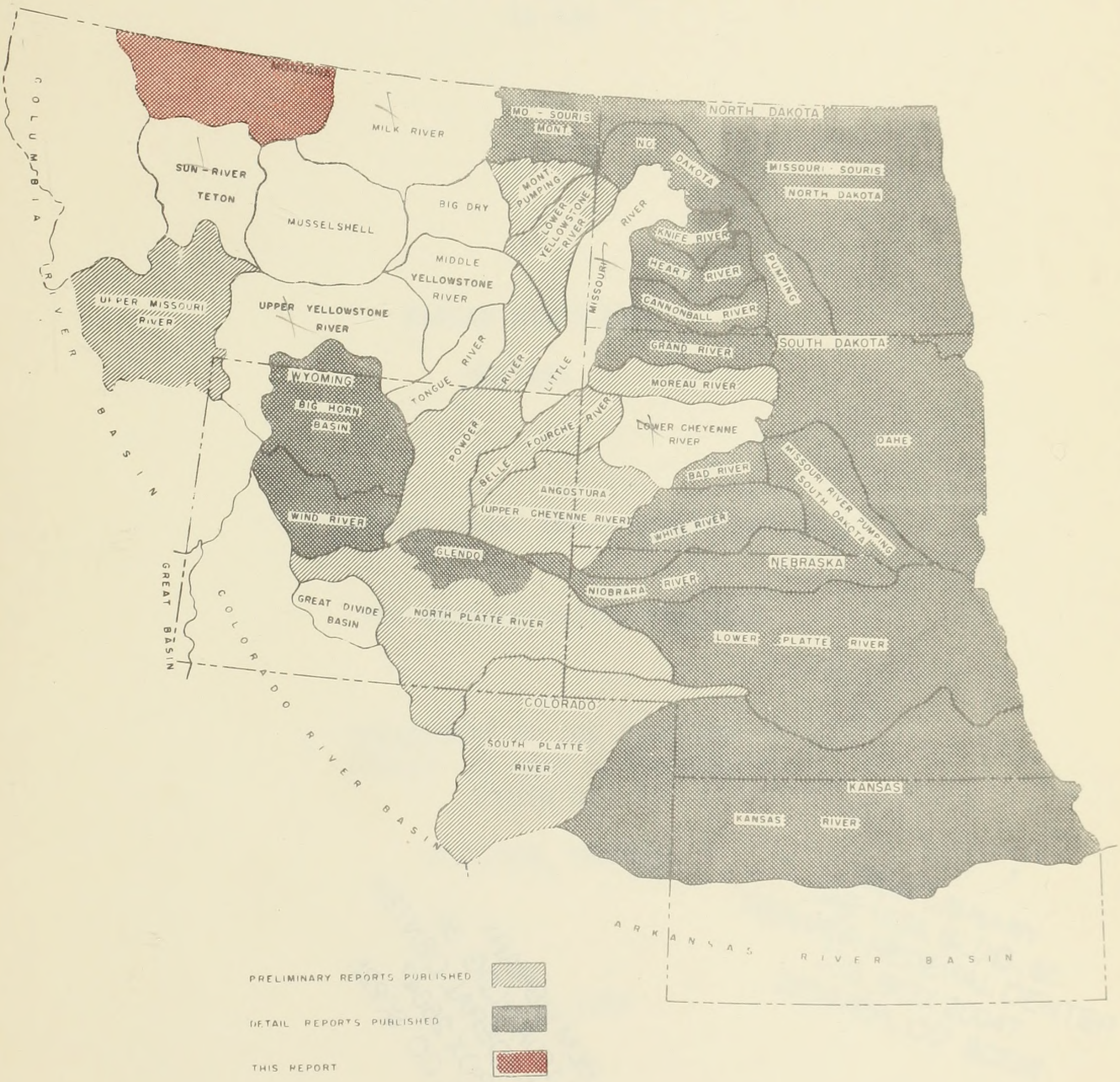
UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
REGION III
BILLINGS, MONTANA

MARCH 1953

PRESENT STATUS OF BUREAU OF LAND MANAGEMENT STUDIES IN THE MISSOURI RIVER BASIN
(LAND CLASSIFICATION)



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Land Planning and Classification Report
# of the
Public Domain Lands
in the

MARIAS RIVER AREA

MONTANA

A Missouri River Basin Investigation

For Administrative Use Only

US DEPARTMENT OF THE INTERIOR
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March, 1953

This study is a feature of the program of the
Department of the Interior for the development of the
resources of the Missouri River Basin

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PREFACE

This detailed report of the Marias River area has been prepared for eight subareas of public domain lands as outlined in the preliminary report of the area prepared by the Bureau of Land Management in 1949. Seven of the subareas are defined and named on the map with this report. The scattered tracts of public domain outside of these seven subareas are considred to be within a disposal area, where the public domain land will be exchanged or sold. Description of the entire area in this report has been restricted to essentials and to material supplementary to that provided in the preliminary report. This report has been prepared by the detailed examination and classification of each piece of public domain land within the Marias River area. A detailed report has been prepared for each tract of public domain in the area. These individual examinations and reports constitute the basis for the recommendations of management presented in this report. The fundamental policy involved is the determination of the best management for these public domain lands.

The purpose of this report is to present analyses which will direct the proper management and development of the public land resources under public programs or private ownership and to provide for their highest productive use consistent with the best public interest. Similar studies have been made, and others are in progress for other tributary drainages in the Missouri River system. Division of the Missouri River Basin into the 34 study areas and the completion of reports therefor is shown on the frontispiece map of this report.

Much of the study area is within the area of influence of the Lower Marias Unit. This Bureau of Reclamation unit provides for the development of irrigation of 127,000 acres of benchland in the eastern portion of the area. The entire drainage of the Marias River is within the report area. Adjacent parts of the upper Milk River drainage within Montana are also included.

The field examinations, land classifications and management recommendations presented in this report were made by LeRoy A. Merryfield, Range Conservationist, who prepared the report with the assistance of C. R. Peteler, Range Conservationist. The report was reviewed by Leland E. Fallon, Area Manager of Montana District I. Reproduction of the report and preparation of the map were under the direction of William C. Anderson, Engineering Draftsman. The work was accomplished under the direction of R. D. Nielson, Regional Chief, Division of Lands. The study was made as a feature of the Department of the Interior's comprehensive program for the development of the resources of the Missouri River Basin. Sources of statistical and general information in this report include published reports and data from governmental agencies. Data on landownership, location and area were obtained from county offices and the records of the Bureau of Land Management.

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DESCRIPTION

The Marias River area extends eastward from the Continental Divide along the Canadian border in northern Montana for a distance of 200 miles and southward for 70 miles, including 8,000,000 acres. In addition to the drainage of the Marias River, adjacent parts of the Milk River drainage in Montana are included. Counties in the area are Glacier, Hill, Liberty, Pondera and Toole. The northern portions of Teton and Chouteau Counties are also included. The eastern portion of Glacier National Park and two Indian Reservations, Blackfeet and Rocky Boy's, are within the area. The perpetual snows and glaciers of the Continental Divide in Glacier National Park and the mountain lakes are renowned scenic attractions. The area slopes eastward from the towering crags of the Rocky Mountains across the rolling grazing lands of the colorful Blackfeet Indian Reservation and on to the wheat fields of the high plains. The Sweetgrass Hills are igneous intrusions near the Canadian border in the central part of the area. The Bear Paw Mountains are in the southeastern corner of the area.

The Marias River drains an area of about 9,160 square miles. The gaging station of the Geological Survey near Brinkman measures the flow from 6,400 square miles. Twenty-one year records at this station give an average flow of 810 second feet with a maximum discharge of 15,300 second feet and a minimum of 30 second feet. The Milk River drains about 5,300 square miles in the area. The gaging station at Havre on the Milk River measures the flow from this area plus about 800 square miles of drainage in Canada. Twenty-four year records of this station reveal an average flow of 304 second feet with an undetermined maximum flow and a minimum flow of zero second feet. Maximum flows at Lohman, and above Havre, are 2,540 and 3,450 second feet respectively.

Climate of the area varies from humid with heavy precipitation in the high mountains to semiarid on the plains which make up the majority of the area. Cyclical and seasonal droughts, cold winters, short, hot summers and strong winds feature the climate of the plains section. Average annual precipitation of weather stations in the area varies from 10.53 inches to 19.35 inches. Average frost free period varies from 93 to 135 days. Minimum temperature recorded within the area is -57 degrees at Havre, the maximum being 109 degrees at Big Sandy. Climate restricts crop production to cereals, hay and forage. Moisture supply is such that nonirrigated crops are usually produced by alternate cropping with the practice of a weed free summer fallow. Occasional deep snows, blizzards and prolonged cold spells make it necessary to provide shelter and supplementary feed for livestock. The prevalent winds make it advisable to practice strip farming and trashy tillage.

Soils have been derived from glacial drift in most of the area. They are fertile, but are susceptible to wind erosion. Soils of the plains areas are generally deep and have a good texture for plant growth. Drainage is usually satisfactory except along some streams and in some of the irrigated areas where formations combined with water use have created seeped and alkali areas. Most of the public domain lands are in rough broken areas, in badland areas or along streams with shallow lakes and poor drainage. Loam soils cover most of the area, those of the Joplin series predominating. Variations occur from gravelly loams in the mountains through sandy loams to silt and clay loams. Topography of nearly half of the area is mountainous or sharply rolling. East of the Rocky Mountains about one-third of the plains area is sharply rolling. Physical conditions of topography and soil combine to restrict the tillable portion of the plains area to approximately one-half. Actual farming use is considerably less than this potential. Nearly all of the area is used for farming or grazing with the exception of Glacier National Park.

Natural plant cover of the area makes up some of the most valued grazing land in Montana. Bluestem wheatgrass (Agropyron smithi) and blue grama (Boutelona gracilis) make up most of the cover on the plains grazing lands. Needleandthread grass (Stipa comata) dominates on some of the benchlands. Above 4,000 feet elevation in the foothills and mountains, grassland areas are largely made up of Idaho fescue (Festuca Idahoensis). Portions of the area provide grazing virtually year long, while climatic conditions often interfere with winter grazing over most of the area. Tree cover on the mountains is made up of ponderosa pine at the lower elevations with lodgepole pine, limber pine, common Douglas fir, and alpine fir at the high elevations.

AREA ECONOMY

Wheat production on nonirrigated land produces much of the wealth of the area. Nonirrigated farm lands also produce hay, small grains other than wheat, flax, mustard, sweet clover and radish seed. These crops also dominate on irrigated lands, most irrigated lands being used for hay and grain. Livestock production is a principal segment of the land use economy, employing all of the rangeland, much of the irrigated land crops and some of the dry land crops. Some of the best grazing land in Montana contributes to the livestock returns of this area. Petroleum production and refining are the principal industries in the area. Tourism also contributes to the area economy due to the scenic attractions afforded by Glacier National Park, nearby Waterton Lakes Park in Canada, and by the Canadian Rockies. Transcontinental traffic on U. S. Highway 2 also contributes to business in the area.

Havre, Shelby and Cut Bank are distributing centers in the area. These cities and Chester and Conrad are county seats, provided with county and federal offices. The larger communities in the area are provided with high schools and other cultural and social advantages. Increasing size of operational units of farming and ranching enterprises and the consequent reduced population in rural areas makes it difficult or inadvisable to maintain good social, educational and cultural facilities in rural areas. This feature, combined with winter climatic conditions, makes it necessary for the children or families to reside where schools are available during the school years. There is one college in the area, Northern Montana College at Havre.

The transcontinental main line of the Great Northern Railway crosses the area from east to west. The Shelby to Billings and Havre to Butte lines of the Great Northern extend southward out of the area. A northern branch line goes to Sweetgrass from Shelby, connecting with the Canadian Pacific Railroad. U. S. Highways Nos. 2, 87, 89 and 91 serve the area. Most rural roads are not improved and become impassible at times.

Cash income from crops in the area was $43,619,700 in 1948 and was $32,089,700 in the dry year of 1949. Livestock and livestock products sales produced $9,037,700 in 1948 and $10,399,700 in 1949. Higher prices for livestock probably produced about $15,000,000 in sales from the area in 1951, crop sale value being about $45,000,000. Wheat produces nearly all of the crop income, spring wheat being the leading type. Irrigated land is important in Pondera County, being about one-third of the farm land there. There is a small portion of irrigated land in Glacier County and very little in the rest of the area. Non-irrigated land produces over 90 per cent of the cash crop income. Income derived from cattle in the area is about four times the amount produced by sheep.

Industry

Six geological structures and 23 oil fields in the Marias area made up the largest oil and gas producing area in Montana in 1951. A total of 164 wells were drilled in the area in 1950. Oil production in 1950 was 5,180,881 barrels, valued at $10,361,762. Cumulative oil production in the area at the end of 1950 was 131,753,356 barrels. There were 3,139 producing oil wells and 467 producing gas wells in the area in 1950. Payments to the U. S. Treasury for oil and gas royalties and leases were $59,201.00 in the fiscal year ending June 30, 1951. Oil reserves in the area are estimated to be 118,895,813 barrels.

Petroleum refining is the most important manufacture in the area, there being four refineries. The largest refinery is located at

Sunburst. This plant is the property of the Texas Company and has a capacity of 7,500 barrels of crude oil per day. The Union Oil Company has a 3,500 barrel refinery at Cut Bank. The plant of the Big West Oil Company at Kevin has a capacity of 1,800 barrels. The North Star Refining Company operates a plant at Shelby with a capacity of 1,500 barrels. Havre is a division point on the Great Northern Railway, with maintenance and operating equipment and staff. Industrial employees in the area are an important economic portion of the population. Most of them work in petroleum production, refining and exploration and some work for the railroad.

Electric power for the area is imported from Missouri River plants. The Bureau of Reclamation operates a 115 kilovolt transmission line from Havre to Shelby. This line taps the Fort Peck-Rainbow line of 161 kilovolts at Havre. The Shelby line supplies current to the Hill County Cooperative and the Glacier and Marias Cooperative at Shelby. The Montana Power Company supplies power to towns and cities in the area by lines from their Missouri River hydroelectric plants located south of the area. The Glacier and Marias Cooperative maintains a standby steam plant at Shelby with an installed capacity of 2,200 kilowatts, and two diesel standby units, one of 886 kilowatts at Shelby, and a second of 240 kilowatts at Browning.

The Tiber power plant is under construction along with the Tiber Dam on the Marias River, 13 miles south of Tiber in Liberty County. The installed capacity will be 2,000 kilowatts. During the initial 35-year period, the first 13 years the total available flow of water would be sufficient to generate 17,531,000 kilowatt-hours per year, and during the next 17 years the available flow of water is estimated to produce an average of 6,634,000 kilowatt-hours per year. After full development of upstream lands, a total of 5,576,000 kilowatt-hours could be generated each year.

Population and Settlement

Total population of the area was 40,764 in 1950, about half living in towns and cities and half in rural areas. The area is populated at the rate of 3.26 persons per square mile. During the last ten years rural population of the area has declined and urban population has increased. The average increase in urban population is 23.5 per cent. Total population of the area has increased only 3.2 per cent. Incorporated places have gained 4,188 persons, while total population has increased only 1,268, a net loss of 2,920 in the rural population or 13½ per cent.

Recent growth trends and population figures are depicted in the following tabulation of census statistics for the study area:

	Population		Per Cent of Change
Incorporated Places	1950	1940	
Big Sandy	743	596	+24.6
Browning	1,691	1,825	- 7.3
Chester	733	548	+15.5
Conrad	1,865	1,471	+26.8
Cut Bank	3,721	2,509	+48.3
Havre	8,086	6,427	+25.8
Hingham	214	205	- 4.4
Kevin	351	360	- 2.5
Shelby	3,058	2,538	+20.5
Sunburst	845	709	+19.2
Valier	710	641	+10.8
Total	22,017	17,829	+23.5
Counties			
Chouteau (20%)	1,395	1,464	- 4.7
Glacier	9,645	9,034	+ 6.8
Hill	14,285	13,304	+ 7.4
Liberty	2,180	2,209	- 1.3
Pondera	6,392	6,716	- 4.8
Toole	6,867	6,769	+ 1.4
Total	40,764	39,496	+ 3.2

The first penetration of the area by explorers forecast the troublesome future of the pioneer period. Captain Lewis, of the Lewis and Clark expedition, was grazed on the head by an Indian bullet when he explored the Marias Valley in 1806. From 1830 to 1890 was a period of trapping and Indian trading. During this period, transportation was by steamboat up the Missouri to Fort Benton, thence by canoe and freight wagon to isolated trading posts. With the building of the Northern Pacific Railway, south of the area in 1883, overland freighting replaced the steamboat. Fort Assinniboine was established in 1879 near the present site of Havre. Havre started as a railroad construction camp at the western terminus of the Great Northern Railway in 1887. The railroad built on to Helena in that year, and westward through the area in the next few years.

Boundaries of the Blackfeet Indian Reservation were established in 1885, and opening of the surplus lands to settlement in 1887 marked the beginning of the cattle era and the beginning of the cattle boom. This has been a region of "booms and busts"; the fur boom of the fifties, the cattle boom of the eighties, marked by the "hard winter" of 1887, which nearly ended the cattle business in Montana; the homestead and dry farming boom of 1910-19 ending in the dry year of 1919; and the oil boom of the twenties which ended in the sumphole of the depression prices of 1931. Now dry farming and oil are riding the crest of a double wave of favorable climate and prices, but they may crash on the hard sands of dry years and low prices.

The first step toward settlement of the area was the development of Fort Assinniboine, near Havre, authorized and started in 1879. The fort was developed as an elaborate post, over 2 million dollars being expended for its buildings. In 1911, most of the military reservation became the Rocky Boy's Indian Reservation. Establishment of this cavalry post and opening of the area to settlement made it possible for cattlemen to operate in the area. They quickly established headquarters along the rivers and creeks, beginning the era of open range livestock husbandry that continued to the time of the homesteader. The range was controlled by possession of water.

The Great Northern Railway built across the area during the years 1887 to 1892. This route traverses the lowest pass in the Rockies, only 5213 feet in elevation. Known as the Marias Pass, its location was known only by Indians until discovered by the railroad locators. It is the only single divide pass across the Rockies, a load factor that assists the Great Northern in making good time on its transcontinental freight and passenger schedules. Early attempts at colonization and development by the railroad were unsuccessful. Survey and sectionizing of the area in the nineties did not result in immediate settlement. Discovery of gold in the Sweetgrass Hills in the eighties resulted in little production and produced no settlement of the area. A land office was opened at Havre in 1908 and closed in 1925. The land office at Great Falls served the area from 1902 to 1949, when it was consolidated with the Land Office at Billings.

Homesteading started in the Marias Valley in 1908, spreading rapidly north and west. Five hundred homesteads were taken up near Havre in 1909. Active settlement of the area progressed during the homestead period of 1910-15, all of the suitable land being taken up in 160 and 320 acre tracts. Dryland farming commenced with the homesteads and progressed rapidly with the high prices and favorable climatic conditions of the war years, 1914-18. The dry year of 1919 and poor farm credit caused trouble and failures from which the area never fully recovered until the late twenties. Much of the area is marginal for dry farming, good practice with normal or above normal precipitation being requisite to good crops. The dry thirties caused distress, farm abandonment and emigration. The development of strip cropping, trashy tillage, and mechanization coupled with favorable precipitation and good prices in the forties produced prosperity and extension of dry farming in the area.

Gas and oil development in the area began in 1914 with the discovery of gas in the Box Elder-Havre field. Gas was piped to Havre, making it the first city with natural gas service in Montana. Oil was first developed in 1922 with the discovery of the Kevin-Sunburst field. Drilling progressed rapidly in this field. The Pondera field was discovered in 1927, and oil was first produced in the Sweetgrass Hills area in 1929. The important Cut Bank field was located in 1931 and production developed rapidly. The most recent developments have been in the Devon and Kicking Horse gas fields, discovered in 1944 and 1945. Drilling within old and "wildcatting" within the area were active developments in 1950 and 1951.

Irrigation Development

Irrigation development in the area began with the advent of the stockmen in the eighties. They utilized simple diversions from the streams to produce hay. There are two large irrigation projects in the area. The Valier Project in Pondera County began in 1905 with 44,000 acres under ditch. This Carey Act project was expanded in 1908 and 80,000 acres are now under ditch. The Blackfeet Irrigation project of the Bureau of Indian Affairs has 41,260 acres under constructed works with an ultimate acreage planned as irrigable of 113,100 acres. In addition to these large projects, the Bynum project located in Teton County provides water for 5,000 acres near Brady. The Bureau of Indian Affairs has developed 3,200 acres under ditch on the Rocky Boy's Reservation in Hill County. The acreage under private ditch is considerable, most of it being in the western portion of the area. There are 14,000 acres under small private ditches on the Blackfeet Indian Reservation.

Most of the irrigable land is used for the production of cash grain, largely spring wheat. Usually only half of the irrigable land is irrigated, the rest of it being farmed without irrigation. For example, there are about 69,000 acres farmed on the Valier Project. In 1943, a year of slightly above normal rainfall, only 17,800 acres were irrigated on the project. In 1944, precipitation was below normal, and 30,500 acres were irrigated. In 1945, with less rainfall than 1944, only 28,100 acres were irrigated. The usual practice of not applying irrigation water until necessary results in damage to crops and reduces yields in unfavorable seasons because the water is not applied soon enough for best results.

The Bureau of Reclamation proposes to develop irrigation on 127,000 acres of benchland on the north side of the Marias River in the eastern part of the area. The Lower Marias Unit will be irrigated by water stored in Tiber Reservoir. The total storage capacity will be 1,337,000 acre-feet, of which 575,000 will be dead storage, 362,000 for irrigation, and 400,000 for flood control. The irrigable lands in existing and proposed projects are shown on the map accompanying this report. The Lower Marias Unit is located in southeastern Liberty County, northern Chouteau County and southern Hill County.

LANDOWNERSHIP

The eight million acre expanse of the Marias River area is largely private land. Glacier National Park and a portion of Lewis and Clark National Forest occupy the Rocky Mountain portion of the area from the Continental Divide eastward. The Blackfeet Indian Reservation occupies the area from the base of the Rockies through the foothills and out on to the plains. East of this reservation the area is principally private land with smaller amounts in other types of ownership. Rocky Boy's Indian Reservation is located in the southeastern corner of the area. Most of the public domain lands in the area are concentrated in locations which have been designated as seven subareas as follows: Birch Creek, Kevin-Sunburst, Loma, Lost River, Marias River, Sweetgrass Hills, and Wild Horse Lake. Each of these subareas is named and outlined on the map accompanying this report. The scattered tracts of public domain outside of these subareas are considered to be in a "disposal area". Each of these subareas is described and considered separately in this report.

Public domain lands in the area are 141,890 acres in extent, which is 1.8 per cent of the total area. Other types of Federal landownership total 1,985,799 acres, or 25 per cent of the area. Indian reservations cover 1,374,410 acres or 17.2 per cent. Glacier National Park is 369,677 acres or 4.7 per cent. Lewis and Clark National Forest covers 158,502 acres or 2 per cent of the area.

A summarization of landownership within each of the subareas and within the entire Marias River area is presented in the following tabulation:

Ownership Status	Birch Creek	Kevin Sunburst	Loma	Lost River	Marias River
Public Domain	7,659	26,958	19,986	3,125	19,486
Power Site Withdrawal					2,469
Reclamation Withdrawal				400	5,253
Indian Reservation					5,064
Lewis & Clark Natl. Forest					
Glacier National Park					
Indian Allotments					
State	1,040	11,960	10,746	640	16,108
Private	16,572	131,220	141,941	11,305	207,726
Total	25,271	170,138	172,673	15,470	256,106

Ownership Status	Sweet-grass Hills	Wild Horse Lake	Disposal Area	Total Marias Area
Public Domain	11,461	14,637	38,678	141,990
Power Site Withdrawal				2,469
Reclamation Withdrawal			59,488	65,141
Indian Reservation			1,369,346	1,374,410
Lewis & Clark Natl. Forest			158,502	158,502
Glacier National Park			369,677	369,677
Indian Allotments			15,600	15,600
State	8,800	5,160	115,252	169,706
Private	115,223	63,163	4,994,063	5,681,213
Total	135,484	82,960	7,120,606	7,978,708

The areas by types of landownership in acres by counties within the Marias River area is as follows:

Landownership	Chouteau County	Glacier County	Hill County	Liberty County
Public Domain	25,421	2,479	28,656	13,523
Reclamation Withdrawal	16,840		31,240	12,795
Powersite Withdrawal				2,469
Glacier National Park		369,677		
Lewis & Clark Natl. Forest		24,544		
Indian Reservations	33,319	1,205,236	72,153	
Indian Allotments	3,480		12,120	
State of Montana	79,840	7,680	47,500	4,880
Private	734,048	293,744	1,692,491	900,033
Total	892,948	1,903,360	1,884,160	933,700

Landownership	Pondera County	Teton County	Toole County	Total
Public Domain	13,982	1,632	56,297	141,990
Reclamation Withdrawal	480		3,786	65,141
Powersite Withdrawal				2,469
Glacier National Park				369,677
Lewis & Clark Natl. Forest	121,616	12,342		158,502
Indian Reservations	63,702			1,374,410
Indian Allotments				15,600
State of Montana	15,426	1,920	12,460	169,706
Private	836,314	39,246	1,184,329	5,681,213
Total	1,051,520	55,140	1,257,880	7,978,708

LAND MANAGEMENT PROGRAMS

Bureau of Reclamation

There is no irrigated land in the area served by the Bureau of Reclamation works. The Fresno Dam and Reservoir, which provides storage for the Milk River Project, is located in the northeast corner of the area. The Lower Marias Unit of the Marias Division is in the construction stage. Irrigable lands to be developed and the principal features of this unit are shown on the map accompanying this report. Major structures proposed are Tiber and Lonesome Lake Dams and Reservoirs, Six Mile Coulee Dam, Sand Gravity Diversion Dam, and Tiber Power Plant. This unit will provide water for 127,000 acres in the southeastern part of the area. This Bureau operates a 115 kilovolt transmission line from Havre to Shelby, which is supplied with current from the Fort Peck-Rainbow line of 161 kilovolts at Havre. The Tiber Power Plant of the Lower Marias Unit will have a capacity of 2,000 kilowatts.

Bureau of Indian Affairs

There are two Indian reservations and 107 public domain Indian allotments in the Marias area. The Blackfeet Indian Reservation, containing 1,268,938 acres of Indian trust land, occupies the foothill transitional area between the Rocky Mountains and the Great Plains, as shown on the map accompanying this report. Most of the reservation is grazing land, with considerable areas of farm land, both irrigated and nonirrigated. The Blackfeet Irrigation Project has 41,260 acres under constructed works with an ultimate irrigable area of 113,100 acres. The farm lands are used for grain and hay. Wheat is the principal grain and alfalfa is the leading hay crop. In addition to livestock and farming, oil production on the reservation contributes to the income of the Blackfeet Indians. Records of the Indian Agency at Browning listed the enrolled Indian population as 5,914 persons, about 90 per cent of whom are resident.

The Rocky Boy's Indian Reservation is located in the Bear Paw Mountains in the southeast corner of the area. This reservation is 105,292 acres in extent. The resources of the reservation are very limited in comparison with the population of 1,000. Range capacity is only 2,400 animal units and the only important additional resource is 7,543 acres of dry farm land and 950 acres of irrigable land. In order to provide support for part of the large population, the Indians favor development of the Lower Marias Unit, as it will provide irrigation water for 6,384 acres of Indian land.

The 107 public domain Indian allotments in the area are the property of the Turtle Mountain Chippewa Indians. Total area of the allotments is 15,600 acres, of which 3,914 acres would be irrigable under the Lower Marias Unit development. These lands are owned by non-resident Indians.

National Wildlife Refuges

There are two National Wildlife Refuges in the area, Lake Thibadeau and Creedman's Coulee, located in northeastern Hill County. These refuges of 5,768 acres of water surface are migratory waterfowl refuges.

National Forests

The Lewis and Clark National Forest occupies an area of 158,502 acres in the southwest corner of the area. This National Forest makes up two per cent of the Marias River area. The forest extends eastward from the Continental Divide and borders Glacier National Park on the north. Two Medicine Creek has its headwaters in this part of the National Forest. The forest is rough, steep mountain land that furnishes little grazing. Most of the forest area is covered with non-commercial conifer timber. The principal use of this land is for watershed, there being considerable wildlife and recreational use.

Soil Conservation Districts

All of the Marias River area is included within soil conservation districts named for the counties in the area; Chouteau, Glacier, Hill, Liberty, Pondera and Toole. All public domain lands in the area are within the boundaries of soil conservation districts. Technical advice is furnished by the Soil Conservation Service to cooperating ranchers and farmers on all phases of range, soil, and farm conservation. Many of the users of public domain lands cooperate with the Soil Conservation Service in its program. The state law under which these districts operate provides for cooperation with all Federal and State agencies concerning conservation of natural resources.

Bureau of Land Management

The Marias River area includes 141,990 acres of public domain lands administered by the Bureau of Land Management. These lands have a total grazing capacity of 26,223 animal unit months or 5.41 acres per animal unit month. All of these lands are scattered tracts outside of grazing districts. They are leased to livestock operators for grazing purposes under Section 15 of the Taylor Grazing Act. All of these lands are within the area of responsibility of Montana Area I, with headquarters at Malta. This public domain land is utilized as a part of fenced ranches in the area, receiving the same general treatment as the private lands of the area. The leases are usually for a ten year period. All public domain within the area is under consideration for exchange to the State of Montana, at the present time. This proposed exchange is for timber lands owned by the State within Glacier National Park.

The public domain lands in this area have been well managed in the past. Heavy grazing is virtually limited to sheltered spots, creek bottoms and other favored areas. The recent years have been favorable for the growth and increase of all vegetation so the range lands in general are in good to excellent condition. The area includes high producing grass lands which are highly regarded. It may be possible to graze livestock yearlong some years, but operators should always be prepared to winter their livestock over a long winter with deep snow and low temperatures.

Deer and elk are numerous in the mountains along the western border of the area. Some deer and pronghorn antelope are found in the plains portion of the area. Relatively little big game use is made of the public domain lands in the area.

The public domain lands of the area are mostly concentrated within seven subareas, as shown on the map with this report. The scattered tracts of public domain lands outside of these seven subareas are considered to be unsuitable for management by the Bureau of Land Management. They are suitable for disposal by exchange or sale to the State of Montana or to adjoining private owners, who can administer them more efficiently and economically. These tracts are, therefore, designated as being within a disposal subarea, and the balance of the area outside of the seven subareas has been so named. Each of the eight subareas is briefly described and the problems and condition of the public domain therein are presented in the following sections of this report. Each tract of public domain land in the area has been examined and classified. A detailed report of the examination and classification of each tract has been prepared and is on file at the Regional Office of the Bureau of Land Management in Billings, Montana. Data from each of these reports have been tabulated for each of the eight subareas. The description, area and classification of each tract of public domain land in the area is presented in tables 1 through 8. The tracts are segregated by counties within the subareas in these tabulations. Terminology and classification standards of the Soil Conservation Service have been utilized as shown in table 9. A description of condition classes is presented in table 10.

Land use capability of public domain land within the Marias River area by subareas is as follows:

Subarea	Area Acres	Capability Classes (Acres)				Recommended Stocking Rate-AUM		
		Grazing Lands			Waste			
		V	VI	VII	VIII	Total AUM	Acres per AUM	
							Total	Grazing
Birch Creek	7,659		760	2,040	4,859	748	10	4
Kevin-Sunburst	26,958		4,769	17,059	5,130	4,425	6	5
Loma	19,986		1,566	13,124	5,296	3,200	6	4
Lost River	3,125		945	2,180		658	5	5
Marias River	19,486	220	6,165	12,830	271	4,360	4½	4½
Sweetgrass Hills	11,461	80	2,827	6,088	2,466	2,052	5½	4
Wild Horse Lake	14,637	690	2,553	365	11,030	887	16	4
Disposal Area	38,678	2,697	22,574	11,705	1,702	9,893	4	3
Total Public Domain	141,990	3,687	42,157	65,392	30,753	26,223	5	4

The land use capability classification and the grazing capacity of public domain land has also been compiled by counties for the Marias River area. The information is presented in the following tabulation:

County	Total Area Acres	Capability Classes (Acres)				Recommended Stocking Rate-AUM		
		Grazing Lands			Waste			
		V	VI	VII	VIII	Total AUM	Acres per AUM	
							Total	Grazing
Chouteau	25,421	185	3,720	16,170	5,346	4,453	6	4½
Glacier	2,479	32	1,823	624		725	3½	3½
Hill	28,656	2,872	8,903	5,550	11,330	4,414	6½	4
Liberty	13,523	34	5,437	6,271	1,781	2,842	5	4
Pondera	13,982	258	4,934	4,705	4,085	2,411	6	4
Teton	1,632		120	573	939	171	9½	4
Toole	56,297	306	17,220	31,499	7,272	11,207	5	4½
Total Public Domain	141,990	3,687	42,157	65,392	30,753	26,223	5½	4¼

BIRCH CREEK SUBAREA

Description

This subarea is located in Townships 27,28 and 29 N; Ranges 8 and 9 W; in the southwestern part of Pondera County along Birch Creek. The Blackfeet Indian Reservation is on the west across Birch Creek. The nearest town is Dupuyer, which is ten miles east on U. S. Highway No. 89. The area comprises a total of 25,271 acres; 7,659 acres or 30 per cent of which is unreserved public domain; 1040 acres, or 4 per cent, is State land, and the remaining 16,572 acres, or 66 per cent is privately owned.

This subarea occupies a transitional phase between the Great Plains to the east and the Rocky Mountains to the west. During the lat Wisconsin Glaciation, the Rocky Mountains were a collecting ground for glaciers, and in Pondera County there is evidence that the glaciers in the canyons of Sheep, Birch and Blacktail Creeks and other streams united below the mountains and formed a continuous ice sheet along the base of the mountains as far as Cut Bank Creek in Glacier County, Montana. Glacial outwash from the mountain glaciers covers the valleys of many of the larger streams such as Birch and Dupuyer Creeks. The forks of Birch Creek head on the Continental Divide. These forks unite in the mountains to form Birch Creek, which flows northeast through a deep canyon between Major Steele's Backbone and Wailing Reef. Birch Creek is one of the larger streams of the county with a valley that averages about one-fourth mile wide and is largely covered with river wash. This creek is dammed at the mouth of the canyon to form Swift Reservoir which supplies water for the Valier irrigation project.

Much of the public domain lands lie in the Horsethief sandstone and the St. Mary formations. However, most of the subarea is glacial moraine and terrace gravel. Adjacent to Swift Reservoir on the southeast is a large dike of Sheep Mountain quartzite of the Precambrian Missoula group. The remainder of the subarea to the west is undivided Paleozoic, Cretaceous rocks.

The parent material for most of the soils in this subarea is glacial moraine and is the stony and gravelly phase of the Burton, Lismas, Cut Bank, Cheyenne, Morton and Pierre soil series. The soils in the mountainous areas, which comprise over 60 per cent of the public domain, are undifferentiated mountain soils derived from the Horsethief sandstone, glacial moraine and Precambrian quartzites. The soils on most of the public domain are shallow and unstable. They are subject to excessive wind and water erosion if the sparse vegetation is unduly disturbed.

Minerals

There are no indications of minerals in the subarea and no evidence of early prospectors having worked the subarea. Shallow veins of coal, less than 30 inches in thickness, may extend into the eastern edge of this subarea.

Climate

The climate of this subarea is considered semiarid and is greatly influenced by the elevation and by the mountains. Temperature and precipitation records are available for two stations adjacent to the subarea, Blackleaf and Valier. Blackleaf is eight miles southeast and Valier is 25 miles northeast of this subarea. Blackleaf has an elevation of 4,671 feet and Valier is 3,800 feet in elevation. The monthly, seasonal and annual temperature extremes and means, in degrees Fahrenheit, of these two stations are as follows:

	Mean		Absolute Maximum		Absolute Minimum	
	Blackleaf 1905-1950	Valier 1911-1950	Blackleaf	Valier	Blackleaf	Valier
December	20.8	21.4	60	62	-43	-34
January	16.2	18.0	62	61	-46	-39
February	17.6	20.8	65	63	-39	-30
Winter	18.3	20.1	65	63	-46	-39
March	25.8	29.1	75	69	-32	-32
April	38.1	41.0	84	78	- 5	- 1
May	45.7	50.0	93	89	11	18
Spring	36.6	40.0	93	89	-32	-32
June	54.1	58.1	90	98	12	29
July	60.2	64.9	96	98	27	30
August	58.2	63.0	95	97	23	35
Summer	57.3	62.0	96	98	12	29
September	51.2	53.0	94	87	6	8
October	42.8	44.0	86	82	-20	-18
November	30.9	32.5	82	69	-21	-22
Fall	41.6	42.5	94	87	-21	-22
ANNUAL	38.5	41.4	96	98	-46	-39

The following tabulation depicts monthly and seasonal extremes in precipitation records at these two stations:

	Total Amount Driest Year		Total Amount Wettest Year		Mean		Snowfall Mean	
	1914 Blackleaf	1919 Valier	1911 Blackleaf	1927 Valier	Blackleaf	Valier	Blackleaf	Valier
December	0.19	0.20	0.24	0.54	0.47	0.47	6.1	4.2
January	.18	.04	.41	.80	.67	.44	9.1	6.3
February	.23	.34	.20	.19	.56	.30	6.0	4.5
Winter	.62	.68	.85	1.53	1.70	1.21	21.3	15.0
March	0.54	T	T	1.30	.56	.40	6.2	2.7
April	1.23	.13	0.57	1.05	1.07	.77	10.3	3.1
May	1.11	1.40	5.10	3.84	3.09	1.67	3.2	1.7
Spring	2.88	1.53	5.67	6.19	4.72	2.84	19.7	7.5
June	3.07	.70	5.86	1.62	3.72	2.50	T	T
July	.34	.38	2.86	1.77	1.55	1.85	0	0
August	.63	.64	3.59	2.66	1.55	1.50	T	0
Summer	4.04	1.22	12.31	6.04	6.82	5.85	T	T
September	0.24	0.97	6.93	1.17	1.94	1.12	4.7	1.6
October	1.75	.58	1.42	.67	1.08	.70	9.4	4.8
November	.46	.28	1.52	1.15	.65	.24	4.6	4.4
Fall	2.45	1.83	9.87	2.99	3.67	2.06	18.7	10.8
TOTAL	9.98	5.66	28.70	20.08	16.91	11.97	59.6	33.3

The station at Blackleaf will reflect the weather conditions of the larger part of the subarea more accurately than the one at Valier. However, the Valier station records apply to the scattered tracts away from the mountains. The subarea is subject to strong westerly and southwesterly winds which are usually more severe during the early spring months.

Land Use and Settlement

All the public domain lands in this subarea are nontillable grazing land. There are a few small tracts of irrigated private lands along Sheep Creek which are used to produce hay. All other lands in the area are nontillable grazing lands. The present boundary of the Blackfeet Indian Reservation along Birch Creek was established in 1885 and the unreserved public lands were not thrown open for settlement until 1887. Stock raising was taken up soon after the Indians were confined to the reservation and the lands were leased for settlement. This subarea was sectionized during the nineties. This subarea is primarily a stock grazing area. Stock is run on the open range during the grazing season and wintered on the hay and irrigated ranches east of the area.

Public Domain Land Classification

There are 7,659 acres of public domain land in the Birch Creek subarea. Most of the public land in the subarea is in the vicinity of the Swift Reservoir, adjoining the Lewis and Clark National Forest, as shown on the map with this report. The balance of the public land in the subarea is in 21 scattered tracts at lower elevations. There is ample evidence that the steep mountainous lands around Swift Reservoir have been overgrazed and badly trailed in the past. The Federal lands in the mountainous areas average over 15 acres per animal unit month and it is very doubtful if lands with this sparse growth of palatable vegetation should be used at all by domestic livestock.

The public domain lands of the Birch Creek subarea are classified as follows:

Unit	Land Use Capability Class						Total Area Acres
	VI		VII		VIII		
	Acres	Percent	Acres	Percent	Acres	Percent	
Swift Reservoir	110	2	1,102	23	3,703	75	4,915
Scattered Tracts	650	24	937	34	1,157	42	2,744
Total	760	10	2,039	27	4,860	63	7,659

The land use capability classes given refer to the standard classes of the Soil Conservation Service. Standards for this classification are presented in table 9. All of the subarea was in good condition at the time of examination. Standards for the determination of condition are given in table 10. The detailed classification and description of each tract of public domain within the subarea is presented in table 1. Only 2,047 acres of public domain are considered to be suitable for grazing use; 5,612 acres being of value only for watershed and wildlife use.

Recommendations

Public domain lands within the Birch Creek subarea are largely concentrated about the Swift Reservoir, 65 per cent of the public land being located there. This land is valuable for recreation, watershed, and wildlife uses. Livestock grazing use should be eliminated. This land should be administered by the Forest Service in conjunction with the Lewis and Clark National Forest.

Land in this vicinity is not suitable for livestock grazing as the mountains are steep and the soil is shallow on solid rock. The vegetation does not have a firm foothold and is easily dislodged and very difficult to replace. The maximum amount of available forage is 292 animal unit months or an average of 16.8 acres per animal unit month. The vegetation of this unit has an average density of .10 with large areas of rocky lands. The waste lands have a scattered to heavy cover of Rocky Mountain juniper, limber pine, Douglas fir and other brush and weeds with little grass. The area ranges in elevation to over 7,000 feet near the head of Sheep Creek down to 5,000 feet on the east side of the public domain lands.

The Swift Reservoir is encircled by public domain on the east, west and south, the Blackfeet Indian Reservation being on the north. Two resort ranches operate in this subarea, mostly to accomodate hunters to the big game area along the Continental Divide. This area is very rough and rugged, resorts being the terminus of roads into the area, further travel being made by pack and saddle outfits. This unit joins the Lewis and Clark National Forest for five miles on the south and three miles on the west. It is joined on the north by the Blackfeet Indian Reservation and on the east by privately owned lands. The Pentagon Primitive Area of the Flathead National Forest is only ten miles from this subarea along the Continental Divide. The Swift Reservoir public domain lands are being considered by the Forest Service for acquisition.

The remaining 2,744 acres of unreserved public domain lands are scattered through the area in 21 separate and isolated tracts. These are primarily valuable for grazing. These lands are in good condition. The vegetation is a grass and grass browse type. There are 456 animal unit months of available forage on these tracts or an average grazing capacity of 6 acres per animal unit month. There is no need for these scattered tracts to remain in Federal ownership. These tracts are now being considered by the State of Montana for exchange. Their disposal to State or private interests will not create any public land problems nor adversely affect the local economy, and will be in the best public interests. In case the State does not select these tracts, it is recommended that they be classified as suitable for disposal and offered at public sale in accordance with the detailed classification report and appraisal on file at the Region III office of the Bureau of Land Management at Billings, Montana.

Table 1.- Summarized Description and Classification of Public Domain Land by Counties
Within the Birch Creek Subarea of the Marias River Area, Montana, 1952 1/

Montana Principal Meridian			Subdivision	Acres	General Land Character	Present Land Use	Land Capability Classification 2/	Principal Suitability	Proposed Management
Twp. North	Range West	Sec.							
Pondera County									
28	9	1	Lots 3,4,5,6,11,12,N½SW¼	316.29	Steeply rolling	Grazing	VI	Grazing	Private
		3	Lots 5,6,7,9	147.20	Steeply rolling	Grazing	VII	Grazing	Private
		7	Lot 8	28.60	Steeply rolling	Grazing	VI	Grazing	Private
		8	Lots 9,10	58.20	Steeply rolling	Grazing	VII	Grazing	Private
		9	Lots 4,5,6,7,SE¼SE¼	180.30	Steeply rolling	Grazing	VII	Grazing	Private
		12	NW¼, SW¼NE¼	200.00	Steeply rolling	Grazing	VI	Grazing	Private
		18	Lots 9,10,12,13	110.30	Steeply rolling	Grazing	65/VI:45.30/VII	Grazing	Private
		31	E½NE¼, W½E½, SE¼SE¼	280.00	Rough mountainous	Grazing	VIII	Watershed	Natl. Forest
		32	S½SW¼	80.00	Rough mountainous	Grazing	VIII	Grazing	Private
		33	S½SE¼	80.00	Rough mountainous	Grazing	VII	Grazing	Private
28	10	23	Lots 6,7,8,9,10,11,SE¼SW¼	218.64	Rough mountainous	Watershed	118.64/VII: 100/VIII	Watershed	Natl. Forest
		24	Lot 9, SW¼NE¼	83.52	Rough mountainous	Watershed	40/VI:43.52/VIII	Grazing, Watershed	Natl. Forest
		25	All	640.00	Rough mountainous	Watershed	70/VI:170/VII, 400/VIII	Watershed	Natl. Forest
		26	All	640.00	Rough mountainous	Watershed	240/VII:400/VIII	Watershed	Natl. Forest
		27	Lots 5,6,7,9,10,12	184.64	Rough mountainous	Watershed	VIII	Watershed	Natl. Forest
		34	All	576.22	Rough mountainous	Watershed	100/VII: 476.22/VIII	Watershed	Natl. Forest
		35	All	636.08	Rough mountainous	Watershed	236.08/VII: 400/VIII	Watershed	Natl. Forest
		36	All	637.48	Rough mountainous	Watershed	237.48/VII: 400/VIII	Watershed	Natl. Forest
29	8	29	S½S½	160.00	Rough mountainous	Watershed	VIII	Watershed	Private
		31	Lots 1,2,4,3,SE¼NW¼, SW¼NE¼, E½SW¼,SE¼	476.50	Rough mountainous	Watershed	VIII	Watershed	Private
		32	N½, NE¼SW¼	360.00	Rough mountainous	Watershed	VIII	Watershed	Private
		33	NW¼, SW¼SE¼	200.00	Rough mountainous	Watershed	40/VI:160/VIII	Watershed	Private

-Continued

Table 1.- Summarized Description and Classification of Public Domain Land by Counties Within the Birch Creek Subarea of the Marias River Area, Montana, 1952 1/ -Continued

Montana Principal Meridian Twp. North	Range West	Sec.	Subdivision	Acres	General Land Character	Present Land Use	Land Capability Classification 2/	Principal Suitability	Proposed Management
Pondera County									
29	9	34	Lots 4, 5	47.45	Steeply rolling	Watershed	VII	Grazing	Private
		35	Lots 5, 6, 7, 9	160.40	Steeply rolling	Watershed	VII	Grazing	Private
		36	Lots 1, 2, 4	98.45	Steeply rolling	Watershed	VII	Grazing	Private
Teton County									
27	9	4	E½NE¼, NE¼SE¼	120.00	Rough mountainous	Grazing	VII	Grazing	Private
		5	W½, SW¼SE¼	379.47	Rough mountainous	Grazing	VIII	Watershed	Natl. Forest
		6	Lots 1,2,3,4,5,6,7, NE¼, N½SE¼	559.05	Rough mountainous	Grazing	VIII	Watershed	Natl. Forest

Totals by Counties	Total Acres	Acres by Land Capability Classes V	VI	VII	VIII
Pondera	6,600.27		759.89	1,919.50	3,920.88
Teton	1,058.52			120.00	938.52
Grand Total	7,658.79		759.89	2,039.50	4,859.40

1/ This table has been compiled from the individual tract classification reports of the Bureau of Land Management, Region III, Billings, Montana.

2/ See table 9 for detailed description of land-use capability classification.

KEVIN-SUNBURST SUBAREA

Description

The Kevin-Sunburst subarea is located in the western part of Toole County, Montana. It is nine miles in width and thirty miles in length with a total area of 170,138 acres of which 26,958 or 16 per cent is unreserved, unappropriated public domain; 11,960 acres or 7 per cent is State land, and 131,220 or 77 per cent is privately owned land. There are no important physiographic features in this area. The drainage is south, southeast and southwest to the Marias River. The elevation varies from 3,900 feet in the "Black Hills", a badland formation southwest of Sunburst, to 3,283 feet at Shelby, Montana.

This subarea is typical of the Great Plains, which was once covered with the continental ice sheet. The drift of the glaciers was largely deposited in recessional ridges and is of variable depth. Differences of 100 feet or more often occur between the surface of the pot holes and tops of the maraine ridges. Shallow alkali-saline lakes are found the entire length of the subarea from the northern boundary north of Sunburst to the southern boundary at Shelby, Montana. Many of these lakes are dry during the summer and fall and may afford some livestock feed during the fall and winter. The largest and deepest of these lakes are a few miles northeast of Shelby and northeast of Sunburst. Practically all of the public domain land is either in these lake bed depressions or in the "Black Hills" badlands southwest of Sunburst.

All of the subarea lies in the Colorado shale formation except the northwest corner where the Virgelle sandstone and the Two Medicine formations make their appearance. There is a narrow strip of the Telegraph Creek formation transition beds along the western edge of the Sweetgrass Hills that extends through the northwest corner of this unit south to the Marias River. One of the most important oil structures in the State of Montana, the Sunburst-Kevin field, is in this subarea.

The soils of this subarea are all considred to be grazing soils and are cultivated to a very limited extent. On most of the area cultivation is prevented by a rough, shallow, stony surface and glacial lake depressions, which are usually heavily alkali-saline. The soils are classified as the stony and sandy phase of the Joplin, Scobey and Bainville series, and undifferentiated alluvial soils of the lake depressions and the badlands areas southwest of Sunburst, Montana. This badlands area is locally known as the "Black Hills". These hills are rough, steep, slack shale with deeply eroded coulees and sharp ridges.

Climate

The climate of this subarea is characterized by low rainfall, a dry atmosphere, hot summers, cold winters and a large number of sunshiny days. The periods of high temperature in the summer are not of long duration, usually lasting only a few days and are not oppresive because of the low humidity. The extreme cold waves in winter are generally accompanied by high winds. The average annual precipitation at Shelby, Montana is 11.50 inches of which 8.14 inches fall during the growing season. The average annual growing season is 110 days with the last killing frost in spring on May 27, and the first in the fall on September 14.

Oil and Gas

One of the most important oil and gas fields in Montana is in Toole County and a large part of this structure is in this study subarea. All the public domain lands in the subarea are under oil and gas lease. The Kevin-Sunburst field was discovered in 1922. There are 25,000 proven acres in this field which have yielded 54,570,774 barrels of crude oil up to 1951. There were 1,665 producing oil wells and 223 producing gas wells in the subarea in 1950. The oil producing potential in barrels daily estimated was 4,500 on January 1, 1950 and 4,300 on January 1, 1951. The daily average barrels of oil produced in 1950 was 4,072. Total 1950 production was 1,486,218 barrels, the cumulative production being 54,570,774 barrels. Total estimated reserves of the field are 34,021,626 barrels. The oil production formations in this field are the Colorado, Kootenai, Ellis and Madison.

The Bureau of Land Management made the following collections for oil and gas leases and royalties in Toole County for the 1951 fiscal year: nonproducing schedule of transfers, $5,351.00; nonproducing basis, $6,801.17; producing royalties, $65,032.28, or a total of $77,184.45. Ten per cent of this money goes into the general fund, 37.5 per cent goes to the State of Montana, and 52.5 per cent goes to the Bureau of Reclamation for development work.

Agriculture

Agricultural activities in this subarea are almost exclusively restricted to stock raising. All of the Federal lands are under grazing lease. Native hay is cut around the many lakes and from some of the lake beds, which dry up sufficiently to produce good crops of bluestem wheatgrass and sedges. In former years horses wintered in the "Black Hills", near Sunburst. Vegetation in the "Black Hills" is made up of bluestem and spiked wheatgrass, bluegrama grass, big sagebrush and skunkbush.

Public Domain Land Classification

The public domain lands in the subarea are about evenly distributed between two locations. A considerable block of public domain is located in the "Black Hills" and the remaining tracts are scattered among the alkali-saline lakes and depressions. Shale soils and steep slopes cause low vegetative production in the "Black Hills" and alkali-saline soils and lack of drainage restrict production and use of most of the other public lands.

The public domain lands of the Kevin-Sunburst subarea are classified as follows:

	Land Use Capability Class			Total
	VI	VII	VIII	Area
Acres	4,769	17,059	5,130	26,958
Per Cent	18	63	19	100

All of the lands are considered to be suitable for grazing use, except 3,193 acres of barren lake beds and badlands. The recommended stocking rate is 6 acres per animal unit month, or 5.4 acres for the net area of 23,756 acres of grazing land. At the time of examination, all lands were in good to very good condition. A summary of the detailed classification and description of each tract of public domain in the subarea is given in table 2.

Recommendations

The public lands in the "Black Hills" part of the subarea are suitable only for limited grazing since the soil is shallow and unstable and subject to erosion. This area is not of sufficient size for a game range and there is no water, timber, farmlands or improvements on the area. There appears to be no need for it to remain in its present status. It is recommended that it be classified as suitable for disposal and offered for exchange or sale. Since these lands are near a proven oil and gas field, minerals should be reserved by the Federal Government.

The "Black Hills" area should be kept under good range management. The area should be allowed to rest during the spring and early summer and grazed only during the fall and winter until the vegetative cover has increased in composition and density to the limit of the soil productivity and climatic conditions. This area has been badly trailed in the past but, due to the limited use for the past decade, the old erosion seems to have healed over. No water developments are recommended here as these would tend to increase trailing and accelerate erosion. The present good condition of the area is due to the fact that one operator controls most of the adjacent land and has these Federal lands under grazing lease. Sufficient water has been developed on the adjacent private land to properly utilize the public domain. The number of livestock presently grazed on the entire area is well under the total carrying capacity of all the lands in the grazing unit. This favorable condition exists at present only because of a chain of circumstances which made it possible. Reversion to the 1930 drought and land tenure conditions could again occur. The "Black Hills", with their unstable soil and low density vegetative cover, could easily become barren and badly eroded.

The area between Sunburst and Shelby contains a series of shallow lakes and lake depressions which in time will become filled with drifting soil and decaying vegetation. There has been some discussion regarding the possibility of draining this area and, while this is physically possible, it does not appear to be economically feasible. A drainage canal from three to fifteen feet deep would have to be constructed from northeast of Sunburst to the Marias River south of Shelby, a distance of nearly 40 miles, and lateral canals built from the various lake depressions to the main canal. The lake depressions should then become excellent hay and grazing lands, but the cost would probably exceed the value of the development. These lands are not needed for any public program and there appears to be no need for these lands to remain in public ownership. If they are not selected by the State of Montana for the State-Glacier Park Exchange, it is recommended that they be offered for exchange or public sale.

Table 2.- Summarized Description and Classification of Public Domain Lands in Toole County, within the Kevin-Sunburst Subarea of the Marias River Area, Montana, 1952 1/

Montana Principal Meridian									
Twp. North	Range West	Sec.	Subdivision	Acres	General Land Character	Present Land Use	Land Capability Classification 2/	Principal Suitability	Proposed Management
32	3	1	Lots 1,2,S½NE¼,SE¼,E½SW¼	374.50	Steeply rolling	Grazing	VII	Grazing	Private
		2	Lot 2, NW¼SW¼,S½SW¼, SW¼SE¼	186.02	Steeply rolling	Grazing	VII	Grazing	Private
		3	E½SE¼	80.00	Steeply rolling	Grazing	VII	Grazing	Private
		11	S½NE¼, SE¼NW¼, NE¼SW¼,SE¼	320.00	Steeply rolling	Grazing	VII	Grazing	Private
		12	NE¼,E½SE¼,SW¼SE¼,S½SW¼	360.00	Steeply rolling	Grazing	VII	Grazing	Private
		13	N½NE¼	80.00	Steeply rolling	Grazing	VII	Grazing	Private
		22	SE¼NE¼	40.00	Steeply rolling	Grazing	VII	Grazing	Private
32	2	6	Lot 7, E½SW¼	108.19	Steeply rolling	Grazing	90/VII:18.19/VIII	Grazing	Private
		7	Lots 1,2,3,E½NW¼, S½NE¼,E½SE¼	345.41	Steeply rolling	Grazing	120/VII: 225.41/VIII	Grazing	Private
		8	S½N½, SW¼SW¼, E½SW¼, W½SE¼	360.00	Steeply rolling	Grazing	VII	Grazing	Private
		17	NE¼NE¼, W½NW¼	120.00	Steeply rolling	Grazing	70/VII:50/VIII	Grazing	Private
		18	SE¼SW¼	40.00	Steeply rolling	Grazing	VII	Grazing	Private
		19	Lots1,2, NW¼SE¼	111.54	Steeply rolling	Grazing	VII	Grazing	Private
33	2	4	Lots 3,4, SW¼NE¼, NW¼SE¼	159.16	Steeply rolling	Grazing	VII	Grazing	Private
		5	SW¼SW¼	40.00	Gently rolling	Grazing	VI	Grazing	Private
33	3	4	Lot 4, S½NW¼, S½SW¼	199.99	Gently rolling	Grazing	80/VI:119.99/VII	Grazing	Private
		5	N½S½, SE¼SW¼, SW¼SE¼	240.00	Gently rolling	Grazing	VII	Grazing	Private
		8	NE¼NW¼, E½NE¼	120.00	Gently rolling	Grazing	VI	Grazing	Private
		9	W½, W½E½	480.00	Gently rolling	Grazing	VII	Grazing	Private
		14	W½SE¼, SW¼	240.00	Steeply rolling	Grazing	VII	Grazing	Private
		15	E½SE¼, W½E½, E½W½	400.00	Steeply rolling	Grazing	320/VI:80/VII	Grazing	Private
		17	SW¼NE¼	40.00	Steeply rolling	Grazing	VI	Grazing	Private
		21	NE¼NE¼, SW¼NE¼	80.00	Steeply rolling	Grazing	VII	Grazing	Private
		22	NW¼NW¼, W½SW¼, NE¼SW¼, NW¼SE¼	200.00	Steeply rolling	Grazing	VII	Grazing	Private
		24	W½NW¼, SE¼SE¼	120.00	Steeply rolling	Grazing	VII	Grazing	Private
		25	SE¼SE¼	40.00	Steeply rolling	Grazing	VII	Grazing	Private

-Continued

Table 2.- Summarized Description and Classification of Public Domain Lands in Toole County, Within the Kevin-Sunburst Subarea of the Marias River Area, Montana 1952 1/ -Continued

Montana Principal Meridian									
Twp. North	Range West	Sec.	Subdivision	Acres	General Land Character	Present Land Use	Land Capability Classification 2/	Principal Suitability	Proposed Management
33	3	26	S½NW¼, SW¼NE¼, NW¼SE¼	160.00	Steeply rolling	Grazing	70/VII:90/VIII	Grazing	Private
		27	NW¼, N½SW¼	240.00	Steeply rolling	Grazing	VII	Grazing	Private
		28	W½SW¼	80.00	Steeply rolling	Grazing	VI	Grazing	Private
		29	N½NW¼, SW¼NW¼, SW¼SW¼	160.00	Steeply rolling	Grazing	VI	Grazing	Private
		35	W½NE¼, SW¼	240.00	Steeply rolling	Grazing	VII	Grazing	Private
34	3	1	Lots 1,2, E½SE¼	159.99	Level to gently rolling	Grazing	VI	Grazing	Private
		3	Lots 2,3, SW¼SE¼	120.06	Level to Gently rolling	Grazing	40/VI:80.06/VII	Grazing	Private
		6	Lot 7, SW¼SE¼	76.29	Level to gently rolling	Grazing	VI	Grazing	Private
		10	N½SW¼	80.00	Level to gently rolling	Grazing	50/VI:30/VII	Grazing	Private
		28	W½SW¼, SE¼SW¼	120.00	Level to gently rolling	Grazing	30/VI:90/VII	Grazing	Private
		33	N½NW¼, NW¼NE¼	120.00	Level to gently rolling	Grazing	80/VI:50/VII	Grazing	Private
34	2	3	W½W½, SE¼SW¼, SW¼SE¼	240.12	Gently rolling	Grazing	160/VI:80.12/VII	Grazing	Private
		4	NW¼SE¼, S½SE¼	120.00	Gently rolling	Grazing	VI	Grazing	Private
		5	N½	318.84	Gently rolling	Grazing	VII	Grazing	Private
		6	Lots 1,2,3,4,5,6,7, NE¼SW¼, SE¼NW¼	343.14	Gently rolling	Grazing	191.41/VI: 115.66/VII:36.07/ VIII	Grazing	Private
		10	NW¼NE¼	40.00	Gently rolling	Grazing	VI	Grazing	Private
		17	W½SW¼	80.00	Gently rolling	Grazing	50/VI:20/VII, 10/VIII	Grazing	Private
		19	Lot 2, SE¼NW¼, SE¼SW¼	117.05	Gently rolling	Grazing	40/VI:77.05/VIII	Grazing	Private
		21	E½NE¼, SW¼NE¼, SW¼SE¼, SE¼SW¼	200.00	Gently rolling	Grazing	50/VI:50/VII, 100/VIII	Grazing	Private
		22	SW¼	160.00	Gently rolling	Grazing	VII	Grazing	Private
		28	NE¼NW W½NE¼	120.00	Gently rolling	Grazing	VIII	Grazing	Private
		28	NW¼SW$_4$, S½SW¼	120.00	Gently rolling	Grazing	VII	Grazing	Private
		30	Lots 3,4, E½SW¼, W½SE¼	235.17	Gently rolling	Grazing	110.17/VI:125/VII	Grazing	Private
		31	SE¼SE¼	40.00	Gently rolling	Grazing	VI	Grazing	Private
		33	N½NW¼	80.00	Gently rolling	Grazing	VII	Grazing	Private
35	2	6	Lot 2	39.80	Gently rolling	Grazing	30/VII:9.80/VIII	Grazing	Private

Table 2.- Summarized Description and Classification of Public Domain Lands in Toole County, Within the Kevin-Sunburst Subarea of the Marias River Area, Montana, 1952 1/ -Continued

Montana Principal Meridian			Subdivision	Acres	General Land Character	Present Land Use	Land Capability Classification 2/	Principal Suitability	Proposed Management
Twp. North	Range West	Sec.							
35	2	7	Lots 3,4, SE¼SE¼	108.23	Gently rolling	Grazing	25/VII:83.23/VIII	Grazing	Private
		8	E½, E½NW¼, NE¼SW¼	440.00	Steeply rolling	Grazing	380/VII:60/VIII	Grazing	Private
		17	W½E½	160.00	Steeply rolling	Grazing	VI	Grazing	Private
		18	Lots 1,2,3, SE¼SW¼, NE¼NE¼, E½SW¼	263.10	Steeply rolling	Grazing	234.41/VI: 28.69/VII	Grazing	Private
		19	SE¼SW¼, E½NE¼, NE¼SE¼	160.00	Steeply rolling	Grazing	60/VI:70/VII: 30/VIII	Grazing	Private
		20	W½W½, NW¼NE¼	200.00	Steeply rolling	Grazing	60/VI:80/VII: 60/VIII	Grazing	Private
		21	NE¼NE¼, SW¼NE¼	80.00	Steeply rolling	Grazing	VI	Grazing	Private
		22	N½NW¼	80.00	Steeply rolling	Grazing	VI	Grazing	Private
		29	NW¼NW¼	40.00	Steeply rolling	Grazing	VII	Grazing	Private
		30	E½E½, NW¼NE¼	200.00	Steeply rolling	Grazing	VII	Grazing	Private
		31	Lots 1,2,3,4, W½E½, E½W½, E½NE¼	542.08	Steeply rolling	Grazing	462.08/VI:80/VII	Grazing	Private
		32	S½NW¼, E½SW¼, SE¼	320.00	Steeply rolling	Grazing	60/VI:260/VII	Grazing	Private
	3	1	SW¼SW¼	40.00	Steeply rolling	Grazing	VI	Grazing	Private
		2	Lot 4, SW¼NW¼, NW¼SW¼	120.00	Steeply rolling	Grazing	20/VI:90/VII: 10/VIII	Grazing	Private
		3	N½, SE¼, NW¼SW¼	518.64	Steeply rolling	Grazing	420/VII: 98.64/VIII	Grazing	Private
		4	All	637.04	Steeply rolling	Grazing	465/VII: 172.04/VIII	Grazing	Private
		5	E½	318.45	Steeply rolling and rough	Grazing	VII	Grazing	Private
		6	SE¼	160.00	Steeply rolling and rough	Grazing	120/VII:40/VIII	Grazing	Private
		7	S½	313.02	Steeply rolling and rough	Grazing	VII	Grazing	Private
		8	W½, W½E½, SE¼NE¼,SE¼SE¼	560.00	Steeply rolling and rough	Grazing	30/VI:490/VII, 40/VIII	Grazing	Private
		9	NW¼SE¼	40.00	Steeply rolling and rough	Grazing	VII	Grazing	Private
		10	N½NE¼, SW¼NE¼, SW¼,W½SE¼	360.00	Steeply rolling and rough	Grazing	20/VI:290/VII, 50/VIII	Grazing	Private

-Continued

Table 2.- Summarized Description and Classification of Public Domain Lands in Toole County, Within the Kevin-Sunburst Subarea of the Marias River Area, Montana, 1952 1/ -Continued

Montana Principal Meridian									
Twp. North	Range West	Sec.	Subdivision	Acres	General Land Character	Present Land Use	Land Capability Classification 2/	Principal Suitability	Proposed Management
35	3	12	W½SW¼, SE¼SE¼	120.00	Steeply rolling and rough	Grazing	VII	Grazing	Private
		13	NE¼, E½NW¼, SW¼NW¼, N½S½, S½SW¼, SW¼SE¼	560.00	Steeply rolling and rough	Grazing	350/VII:210/VIII	Grazing	Private
		14	SW¼, S½NW¼	240.00	Steeply rolling and rough	Grazing	VII	Grazing	Private
		15	NW¼NE¼, N½NW¼, SE¼SE¼, S½SW¼	240.00	Steeply rolling and rough	Grazing	VII	Grazing	Private
		17	All	640.00	Steeply rolling and rough	Grazing	600/VII:40/VIII	Grazing	Private
		18	Lots 3,4, E½W½, E½	552.58	Steeply rolling and rough	Grazing	500/VII: 52.58/VIII	Grazing	Private
		19	Lots 1,2, E½NW¼, W½NE¼, SE¼NE¼	272.36	Steeply rolling and rough	Grazing	196.36/VII: 76/VIII	Grazing	Private
		20	NE¼NW¼, NE¼NE¼	80.00	Steeply rolling and rough	Grazing	VII	Grazing	Private
		21	NW¼NW¼, SE¼NW¼, E½SW¼, E½NE¼	240.00	Steeply rolling and rough	Grazing	VII	Grazing	Private
		22	W½	320.00	Steeply rolling and rough	Grazing	180/VII:140/VIII	Grazing	Private
		23	NE¼NE¼	40.00	Steeply rolling and rough	Grazing	VII	Grazing	Private
		24	NW¼, W½SW¼	240.00	Steeply rolling and rough	Grazing	VII	Grazing	Private
		25	W½	320.00	Steeply rolling and rough	Grazing	230/VII:90/VIII	Grazing	Private
		26	E½E½	160.00	Steeply rolling and rough	Grazing	120/VII:40/VIII	Grazing	Private
		27	W½W½, SE¼NW¼	200.00	Steeply rolling and rough	Grazing	40/VII:160/VIII	Grazing	Private
		30	Lots 1,2,3, SE¼SW¼	148.00	Gently rolling	Grazing	40/VI:108/VII	Grazing	Private
		32	E½W½	160.00	Gently rolling	Grazing	VII	Grazing	Private
		33	NE¼NE¼, W½SE¼	120.00	Gently rolling	Grazing	80/VII:40/VIII	Grazing	Private
		34	NW¼NW¼, NE¼NE¼, SE¼SW¼, SW¼SE¼	160.00	Gently rolling	Grazing	40/VI:100/VII, 20/VIII	Grazing	Private
36	2	4	SW¼NW¼	40.00	Gently rolling	Grazing	30/VII:10/VIII	Grazing	Private
		5	Lots 1,2,3,4, S½NE¼, SE¼NW¼, SE¼	448.60	Mostly old lake bed	Grazing	190/VII: 258.60/VIII	Grazing	Private
		6	Lot 1	42.17	Mostly old lake bed	Grazing	VIII	Grazing	Private
		17	S½NE¼, SE¼NW¼, E½SW¼, SE¼	360.00	Gently rolling	Grazing	VII	Grazing	Private

-Continued

Table 2.- Summarized Description and Classification of Public Domain Lands in Toole County, Within the Kevin-Sunburst Subarea of the Marias River Area, Montana, 1952 1/ -Continued

Montana Principal Meridian			Subdivision	Acres	General Land Character	Present Land Use	Land Capability Classification 2/	Principal Suitability	Proposed Management
Twp. North	Range West	Sec.							
36	2	19	Lots 1,2,3, NE¼SW¼, SW¼NE¼, NW¼SE¼	219.51	Steeply rolling	Grazing	109.51/VI: 110/VII	Grazing	Private
		29	W½W½, SE¼NW¼, S½NE¼, E½SE¼	360.00	Gently rolling to level	Grazing	200/VII:160/VIII	Grazing	Private
		30	E½E½, NW¼NE¼	200.00	Gently rolling to level	Grazing	140/VII:60/VIII	Grazing	Private
		32	NE¼NE¼	40.00	Gently rolling to level	Grazing	VII	Grazing	Private
36	3	4	Lots 3,4, NW¼SW¼	124.18	Steeply rolling	Grazing	VII	Grazing	Private
		5	SW¼NE¼	40.00	Steeply rolling	Grazing	VII	Grazing	Private
		9	S½NE¼, SE¼NW¼, SE¼SW¼	160.00	Steeply rolling	Grazing	VII	Grazing	Private
		14	SW¼SW¼	40.00	Steeply rolling	Grazing	VII	Grazing	Private
		17	S½NE¼, SE¼NW¼, E½SW¼, W½SE¼, NE¼SE¼	320.00	Steeply rolling	Grazing	150/VI :170/VII	Grazing	Private
		19	Lot 3	34.97	Steeply rolling	Grazing	VI	Grazing	Private
		20	E½NW¼	80.00	Steeply rolling	Grazing	20/VI:60/VII	Grazing	Private
		21	SW¼NW¼	40.00	Steeply rolling	Grazing	VII	Grazing	Private
		22	SW¼SW¼	40.00	Edge of old lake bed	Grazing	VIII	Grazing	Private
		23	N½, SW¼, NW¼SE¼	520.00	Steeply rolling to rough	Grazing	390/VII:130/VIII	Grazing	Private
		24	N½, NW¼SW¼	360.00	Steeply rolling to rough	Grazing	140/VII:220/VIII	Grazing	Private
		25	NW¼NE¼	40.00	Steeply rolling to rough	Grazing	VI	Grazing	Private
		26	W½W½, NE¼NW¼	200.00	Steeply rolling to rough	Grazing	60/VII:140/VIII	Grazing	Private
		27	E½, N½NW¼, S½SW¼, NE¼SW¼	520.00	Steeply rolling to rough	Grazing	180/VII:340/VIII	Grazing	Private
		28	N½NE¼, SE¼SE¼, SW¼NW¼, W½SW¼	240.00	Steeply rolling to rough	Grazing	70/VII:170/VIII	Grazing	Private
		29	E½SE¼, SW¼SW¼	120.00	Steeply rolling to rough	Grazing	60/VI:30/VII: 30/VIII	Grazing	Private
		31	W½E½	160.00	Steeply rolling to rough	Grazing	VI	Grazing	Private
		32	E½SE¼	80.00	Steeply rolling to rough	Grazing	60/VI:20/VII	Grazing	Private
		33	All	640.00	Steeply rolling to rough	Grazing	160/VII:480/VIII	Grazing	Private
		34	All	640.00	Steeply rolling to rough	Grazing	VIII	Grazing	Private
		35	W½W½, SE¼NE¼, NE¼SE¼	240.00	Steeply rolling to rough	Grazing	80/VII:160/VIII	Grazing	Private

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Table 2.- Summarized Description and Classification of Public Domain Lands in Toole County, Within the Kevin-Sunburst Subarea of the Marias River Area, Montana, 1952 1/ -Continued

Montana Principal Meridian									
Twp. North	Range West	Sec.	Subdivision	Acres	General Land Character	Present Land Use	Land Capability Classification 2/	Principal Suitability	Proposed Management
37	2	31	S½NE¼, SE¼	240.00	Gently rolling	Grazing	VII	Grazing	Private
		32	W½, S½SE¼, NE¼SE¼,SE¼NE¼	480.00	Gently rolling	Grazing	VII	Grazing	Private
		33	NW¼SW¼	40.00	Gently rolling	Grazing	VII	Grazing	Private
		21	NW¼NE¼	40.00	Gently rolling	Grazing	VI	Grazing	Private
37	3	23	NW¼SE¼	40.00	Gently rolling	Grazing	VI	Grazing	Private
		25	NW¼NW¼	40.00	Gently rolling	Grazing	VI	Grazing	Private
		26	S½SE¼, NW¼SE¼	120.00	Gently rolling	Grazing	VI	Grazing	Private
		32	SW¼SE¼	40.00	Gently rolling	Grazing	VI	Grazing	Private
		35	NE¼, S½NW¼, N½S½	400.00	Gently rolling	Grazing	VI	Grazing	Private

Total by County	Total Acres	Acres by Land Capability Classes			
		V	VI	VII	VIII
Toole (Grand Total)	26,958.20		4,768.83	17,059.59	5,129.78

1/ This table has been compiled from the individual tract classification reports of the Bureau of Land Management, Region III, Billings, Montana.

2/ See table 9 for detailed description of land-use capability classification

LOMA SUBAREA

Description

This subarea is located in the north central part of Chouteau County. Most of the area is in the broken badlands between the Marias and Teton Rivers and in the badlands along the Marias River. There are 172,673 acres in this subarea; 19,986 acres or 12 per cent of which is unreserved public domain lands; 10,746 acres or 6 per cent is State land and 141,941 acres or 82 per cent is privately owned. The subarea is a combination of badlands and tablelands. At the perimeter of the tablelands, numerous steepsided and steeply dipping coulees begin. The broken up drainage pattern of these coulees, the precipitous buttes and the overall twisted and eroded topography make up the badlands.

The Marias and the Teton, two fairly large rivers, which drain this region, flow together shortly before their common juncture with the Missouri, a couple of miles below Loma, Montana. These rivers, rather than carving out wide valley floors, have cut vertically through the Colorado, Claggett and Bear Paw shales to form badland canyons and deep cut coulees. On either side are the badlands interspersed with the higher, relatively level tablelands. It appears to be evident that in the distant past, the tablelands were continuous over large areas and that erosion tributaries to the rivers caused numerous coulees which have cut sharply into these lands, isolating many fragmentary portions and creating badlands between. Farther away from the rivers much of the tableland area is still intact and is used for small grain crops, hay and grazing, but the coulees have been progressively inching their way further into the tablelands and carrying off the soil. However, during the past decade this progressive erosion has been pretty well corrected by strip and contour farming. These methods of farming allow very little runoff to reach the coulee heads.

The Marias River in this subarea is bordered by high, rugged breaks and badlands. The stream meanders through a narrow valley averaging less than one-half mile wide, and its flood plains are generally fringed by cottonwoods and willows below the barren colluvial slopes. The stream is about 60 feet wide and flows on a gravelly and sandy bottom. Skit Creek flows through this unit and is an intermittent stream which parallels the Marias River for some distance before uniting with it. This stream flows through a deep, narrow valley bordered with drift-covered slopes along most of its course. The divide between the creek and the river has a gently rolling relief but is locally broken with deep coulees. Embletons Coulee, which flows through this unit and unites with Skit Creek, drains a wide sandy basin. It becomes deeply entrenched in the eastern part of the area and enters Skit Creek in a broken sandstone section. The divide south of the basin along Teton

River is broken with deep coulees above which rise bold sandstone cliffs.

All of the subarea lies in the glaciated portion of the Great Plains. The Keewatin Ice Sheet spread over all this area during the late Wisconsin Glaciation. These drift covered plains have an elevation of 2,700 to 3,000 feet along the Missouri River, up to 3,600 feet on the high divides. All the subarea around Loma and the southern part of Skit Coulee is in the Colorado shales, while the area north of this is in the Virgelle sandstone area. Around Goosehill and Kenilworth are extensive beds of Claggett shales. Eagle sandstone outcroppings are found around Colony Bay in Township 29 N., Range 9 E. These formations are all members of the Montana groups of the Upper Cretaceous formations.

Soils and Land Use

The soils in this unit originate almost entirely from the Colorado and Claggett shales and from the Virgelle and Eagle sandstone formations. The tableland soils are the residual products of the shales and are of fine, sandy clay loam texture. The top soil is usually from four to six inches deep while the subsurface soils range from 24 inches to 48 inches in depth. Depending on precipitation, winter wheat crops average 8 to 14 bushels per acre while the average density of the native grasses is three-tenths.

Soils in the badlands are heavy clay in texture and generally have an alkaline reaction. They are transient in character and are generally poorly developed. In many cases the surface horizon is admixed with partly or completely undecomposed shale and sandstone fragments. They are relatively impermeable, so upon wetting become soggy and gumbo like. A high rate of runoff coupled with steep topography make them very susceptible to erosion. By far the largest per cent of the public domain lands are in this soil classification.

Colluvial soils are formed at the mouths of coulees. Sediments from above the valley floor form fan-shaped deposits and as a result the vegetation is frequently buried and must grow through the stratas or layers of new deposits in order to survive.

The deposits of soil brought down by the Marias and Teton Rivers are mostly from the shale and sandstone formations above and are mostly assorted fine sands alternating or combined with clay. On cultivated areas, these alluvial soils grow excellent crops. The public domain lands contain only a few small scattered areas of the colluvial and alluvial soils.

Wheat raising is of primary importance on the privately owned lands. Some small cattle operations are carried on, usually in connection with dry farming enterprises, and many of these operators use the public domain lands in this subarea for spring, summer and fall grazing. When horses were numerous they grazed yearlong in these rough badlands and the erosion trails from this yearlong use are still in evidence although they have been well healed over with saltbush, grass and weeds. Excellent cattle trails from the Marias River to the tableland above allow cattle to move freely from the river bottom to the benches and coulees below the dry farming areas.

The vegetation is closely related to the topography. Blue grama and its associates grow on the tablelands while a browse-shrub type covers the badlands. Of lesser importance, because of the smallness of the areas, is the alluvial fans and river bottom types.

The short grass type of the tablelands has an average density of .3 and 75 to 90 per cent of the composition is grass, of which blue grama occupies between 50 and 75 per cent. Bluestem wheatgrass, Poa, threadleaf sedge, and needleandthread make up 20 to 25 per cent. Prairie junegrass and some prairie sandreedgrass are usually present in every stand but are relatively unimportant from a grazing standpoint. The carrying capacity of this type on the public domain in this area is 3.6 to 5.4 acres per animal unit month. There are about 9,000 acres of this type mostly in small isolated tracts throughout the area.

The browse grass type is found mostly in the badlands. The predominant vegetation is Gardner saltbush and big sagebrush. The remainder is made up of bluestem wheatgrass, blue grass, needleandthread, prairie junegrass, threadleaf sedge and weeds. Some Indian ricegrass is found in the coulees and on the badland slopes. Prairie sandreed grass may be dominant on sandy shoulders and where sand has drifted in the coulees, but these patches are very small. Since the badland soil is slightly saline, Gardner saltbush (Atriplex gardneri), grows luxuriantly in many places, frequently on slopes ranging from 30 to over 100 per cent. Observation shows that the saltbush has its greatest density and most luxuriant growth on the cooler northern sites, while big sagebrush seems to prefer the warmer more southerly slopes. There are about 6,000 acres of true badlands in this subarea and from 50 to 70 per cent of this is inaccessible to cattle. The density of the vegetation in these badlands areas is generally so low that grazing should be limited to wildlife. The existing forage is insufficient and the soil to unstable to warrant any use by domestic stock. Any improvements which would encourage heavier grazing and trailing should be discouraged. Any destruction of the forage cover would cause heavy erosion of the badland soils and would increase the sediment load of the Marias and Teton Rivers and eventual deposition in Fort Peck Lake.

There are a few scattered tracts of bluestem wheatgrass-big sagebrush type on the alluvial fans and along the streams bottoms. This type is generally found on the areas of colluvial soils that were brought in from the badlands above. The characteristic of bluestem wheatgrass to revegetate itself by rhizomes permits a solid spread of this plant even though it has been buried by degrading soils.

Climate

The climate of this subarea is characterized by a moderately low rainfall, a dry atmosphere, hot summers, cold winters and a large proportion of sunny days. Fort Benton, located near the south boundary of the area, is the nearest Weather Bureau record station. Climatic records of precipitation in inches for Fort Benton are as follows:

	Mean 1880-1950	Driest Year 1919	Wettest Year 1876	Snow Fall Inches
December	0.55	0.22	0.09	5.4
January	0.74	1.00	0.71	7.4
February	0.45	0.42	0.28	4.7
Winter	1.74	1.64	1.08	17.5
March	0.57	0.15	1.53	5.6
April	1.15	0.06	1.25	1.3
May	2.66	2.41	11.06	0.8
Spring	4.38	2.62	13.84	8.7
June	2.45	0.63	1.45	0
July	1.59	0.80	2.31	0
August	1.00	0.71	1.46	0
Summer	5.04	2.14	5.22	0
September	1.10	0.32	0.39	T
October	0.64	0.41	0.24	1.2
November	0.55	0.14	0.33	4.1
Fall	2.29	0.87	0.96	5.3
YEAR	13.44	7.27	21.11	30.5

The average length of the frost free period at Fort Benton is 137 days. The temperature record at Fort Benton, Montana, is as follows:

	Mean 1880-1950	Absolute Maximum	Absolute Minimum
December	26.0	73	-59
January	20.6	72	-58
February	21.2	69	-45
Winter	22.6	73	-59
March	30.6	82	-42
April	45.2	90	-06
May	53.6	94	16
Spring	43.1	94	-42
June	61.6	108	27
July	67.8	111	31
August	65.6	108	27
Summer	64.9	111	27
September	56.2	101	9
October	47.8	87	- 6
November	33.2	77	-36
Fall	45.7	77	-36
YEAR	44.1	111	-59

Improvements

The existing improvements are largely boundary fences and stock trails from the rivers to the tablelands. The only reservoir observed near the public lands at the time of examination was on Sec. 9, Township 26 N., Range 8 E. It was nearly dry when examined. No construction of watering places on the subarea is recommended as the area can be utilized to its proper limits from the present stock water in the streams and from private water developments. In the event of needed water development in the future, wells would probably be the most logical type of development. While there are no wells on the public domain, the following information relative to this possibility was obtained: Some water is found at a depth of from 50 to 100 feet but it is of poor quality and unreliable in quantity; good water is found between 500 and 700 feet and artesian water exists between 1,800 and 2,500 feet.

Wildlife

Several herds of antelope and a few deer range over the subarea, utilizing both the tablelands and the river bottoms. There is no timber cover on the public domain lands, but some protection is afforded by the steep badlands and coulees. Small bands of antelope, from 3 to 12, were observed feeding for a short time on the saltbush. These animals would graze for 15 to 45 minutes and then proceed on to the tablelands or to the river bottoms. Some black tail deer were also observed in the saltbush areas. They apparently came up from the rivers and then drifted back. Forty to fifty of these animals were counted in the late evening moving between the river and the badlands. A few sage hens, sharp-tailed grouse and Hungarian partridges were also seen in the area.

Economic and Social Factors

There is very little tenant farming or ranching in this subarea. The land adjustment that took place after the drought and depression has consolidated the holdings into economic units. The relatively small acreage that is owned by absentee landlords is generally leased to the ranchers adjacent to it. Some of the more diversified ranches also lease Federal and State lands, usually for additional grazing lands. All of the State and Federal lands that were capable of wheat production have passed to private ownership. The most important industry on the tablelands is wheat growing and nearly all the operators practice strip farming. Stock raising is practiced by the ranches along the rivers. The stock spend summers in the foothills and badlands and winters on the river ranches. Some operators engage quite extensively both in wheat production and cattle raising. There were no sheep being grazed in the subarea at the time of examination.

Elevators for wheat storage and shipping pens for livestock are located at Loma and Fort Benton. These towns are on the Great Northern Railroad and on U. S. Highway No. 87. These towns are from one to twenty miles from the various tracts of public domain. There is a grade school, churches, depot and several small business houses at Loma. Fort Benton, on the Missouri River, has both grade and high schools, churches, library, business houses and modern sanitation and water systems. The population of Loma, according to the 1950 census, is 110 and Fort Benton, 1,508. These are the only towns in, or close to, this subarea. Great Falls, is the largest city in the State with a population of nearly 40,000, is located 40 miles southeast of Fort Benton on Highway 87. Rural electrification is being developed through this subarea and all the ranches and farms in the area have electric power and telephone service.

Public Domain Land Classification

Public domain lands in the subarea are largely badlands with a high erosion potential. Their classification is as follows:

	Land Use Capability Class			Total Area
	VI	VII	VIII	
Acres	1,566	13,124	5,296	19,986
Per Cent	7.8	65.7	26.5	100

Most of the area classified as Class VII is a poor grade VII land verging on VIII. The land was all in good to very good condition at the time of examination, largely due to the favorable growing conditions of recent years combined with reasonable stocking and good management. Public domain land in the subarea provides 3,200 animal unit months of grazing, with a recommended stocking rate of 6 acres per animal unit month or 4 acres per animal unit month of net grazing lands. A summary description and classification of each tract of public domain in the subarea is shown in table 3.

Recommendations

Most of the badlands have little economic value except as a refuge hiding place for a few blacktail deer and small wandering bands of antelope that are crossing through. Evidence indicates that these badlands were extensively used by horses in the past, especially during the winters. For the protection of these lands and the prevention of excess sediment being moved from them to the Marias and Teton Rivers and thence to the Missouri and to the Fort Peck Lake, the following recommendations are made:

1. That the public domain lands be retained in Federal ownership for their protection and for the control of sedimentation.
2. That no water development projects be constucted on the badlands that would encourage livestock trailing over the steep slopes of unstable shale and sandy underdeveloped soils.
3. That there be no livestock grazing allowed on the browse vegetation of the badlands as trailing would soon cause the destruction of saltbush and big sagebrush.
4. The badlands can not support sufficient vegetation on their steep slopes to permit grazing use. Their use should be limited to the small numbers of wildlife in the area. It is recommended that no leases should be made on the badlands portion of the public domain. The badlands should not support livestock grazing and therefore can not support private ownership and taxation.

Table 3.- Summarized Description and Classification of Public Domain Lands in Chouteau County, Within the Loma Subarea of the Marias River Area, Montana, 1952 1/

Montana Principal Meridian			Subdivision	Acres	General Land Character	Present Land Use	Land Capability Classification 2/	Principal Suitability	Proposed Management
Twp. North	Range East	Sec.							
25	9	1	N½SW¼, Lot 5	101.32	Rough broken badlands	Grazing	30/VI:50/VII, 21.32/VIII	Grazing	Federal
		2	N½SW¼, NE¼SE¼, Lot 8	128.68	Rough broken badlands	Grazing	15/VI:70/VII, 43.68/VIII	Grazing	Federal
		3	N½S½, Lots 5,6	199.08	Rough broken badlands	Grazing	45/VI:95/VII, 59.08/VIII	Grazing	Federal
		4	Lots 3, 5	48.06	Rough broken badlands	Grazing	15/VII, 33.06/VIII	Grazing	Federal
		5	Lots 3, 4, 5	120.13	Rough broken badlands	Grazing	60/VII, 60.13/VIII	Grazing	Federal
		6	Lot 2	40.05	Rough broken badlands	Grazing	VII	Grazing	Federal
		8	S½SE¼	80.00	Rough broken badlands	Grazing	20/VII:60/VIII	Grazing	Federal
		9	S½	320.00	Rough broken badlands	Grazing	90/VII:230/VIII	Grazing	Federal
		10	S½	320.00	Rough broken badlands	Grazing	60/VII:260/VIII	Grazing	Federal
		11	S½SE¼, SE¼NW¼	120.00	Rough broken badlands	Grazing	35/VII:85/VIII	Grazing	Federal
		14	N½N½, SW¼NW¼, NW¼SW¼	240.00	Rough broken badlands	Grazing	75/VII:165/VIII	Grazing	Federal
		15	All	640.00	Rough broken badlands	Grazing	150/VII:490/VIII	Grazing	Federal
		17	N½, N½S½, S½SW¼,SW¼SE¼	600.00	Rough broken badlands	Grazing	VII	Grazing	Federal
		18	N½NE¼, E½SW¼, Lot 4	191.33	Rough broken badlands	Grazing	VII	Grazing	Federal
		19	NE¼NW¼, Lots 1, 2	104.52	Rough broken badlands	Grazing	VII	Grazing	Federal
		20	S½, SE¼NE¼	360.00	Rough broken badlands	Grazing	120/VII:240/VIII	Grazing	Federal
		21	All	640.00	Rough broken badlands	Grazing	110/VII:530/VIII	Grazing	Federal
		22	W½NW¼, SE¼NW¼, SW¼NE¼	160.00	Rough broken badlands	Grazing	35/VII:125/VIII	Grazing	Federal
		23	N½NE¼, SE¼NW¼	120.00	Rough broken badlands	Grazing	35/VII:85/VIII	Grazing	Federal
		24	NW¼NW¼, NE¼SW¼	80.00	Rough broken badlands	Grazing	60/VII:20/VIII	Grazing	Federal
		28	NW¼, W½NE¼	260.00	Rough broken badlands	Grazing	65/VII:195/VIII	Grazing	Federal
		29	N½, N½S½, S½SW¼,SW¼SE¼	600.00	Rough broken badlands	Grazing	140/VII:460/VIII	Grazing	Federal
		30	N½NE¼, NE¼NW¼, S½N½,S½	588.48	Rough broken badlands	Grazing	255/VII: 333.48/VIII	Grazing	Federal
		31	Lots 1,2,3, NE¼NW¼, N½NE¼	235.16	Rough broken badlands	Grazing	145/VII: 90.16/VIII	Grazing	Federal

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Table 3.- Summarized Description and Classification of Public Domain Lands in Chouteau County, Within the Loma Subarea of the Marias River Area, Montana, 1952 1/ -Continued

Montana Principal Meridian									
Twp. North	Range East	Sec.	Subdivision	Acres	General Land Character	Present Land Use	Land Capability Classification 2/	Principal Suitability	Proposed Management
25	9	32	NW¼NW¼	40.00	Rough broken badlands	Grazing	30/VII:10/VIII	Grazing	Federal
		33	Lots 2,4,5,7,	125.14	Rough broken badlands	Grazing	27/VI:79.70/VII, 18.44/VIII	Grazing	Federal
26	7	11	NW¼NW¼	40.00	Steeply rolling	Grazing	VII	Grazing	Federal
26	8	2	S½SE¼, SE¼SW¼	120.00	Steeply rolling to badlands	Grazing	VII	Grazing	Federal
		3	Lot 2, SW¼NE¼	79.84	Steeply rolling to badlands	Grazing	VII	Grazing	Federal
		4	Lots 1, 2, S½NE¼, NE¼SE¼	200.00	Steeply rolling to badlands	Grazing	30/VI:170/VII	Grazing	Federal
		10	S½SW¼, Lot 3	116.90	Steeply rolling to badlands	Grazing	55/VI:50/VII, 11.90/VIII	Grazing	Federal
		11	Lot 5, SW¼SW¼	56.91	Steeply rolling to badlands	Grazing	20/VII:36.91/VIII	Grazing	Federal
		14	SW¼SE¼, SE¼SW¼	80.00	Steeply rolling to badlands	Grazing	VIII	Grazing	Federal
		15	N½NW¼, NE¼NE¼	120.00	Steeply rolling to badlands	Grazing	35/VI: 85/VII	Grazing	Federal
		23, 24	NE¼NE¼ Lot 5, W½NW¼	134.63	Steeply rolling to badlands	Grazing	VIII	Grazing	Federal
		28	N½NW¼	80.00	Steeply rolling to badlands	Grazing	20/VI:60/VII	Grazing	Federal
		35	Lot 6,8	23.66	Steeply rolling to badlands	Grazing	VI	Grazing	Federal
26	9	7	Lot 2	35.70	Steeply rolling to badlands	Grazing	VII	Grazing	Federal
		18	Lot 1, SE¼SW¼, W½SE¼	155.42	Steeply rolling to badlands	Grazing	135.42/VII: 20/VIII	Grazing	Federal
		19	N½NE¼, SE¼NE¼	120.00	Steeply rolling to badlands	Grazing	10/VI:110/VII	Grazing	Federal
		20	W½NE¼, S½S½	240.00	Steeply rolling to badlands	Grazing	30/VI:210/VII	Grazing	Federal
		22	SE½NE¼, E½SE¼	120.00	Steeply rolling to badlands	Grazing	VII	Grazing	Federal
		23	SE¼SE¼	40.00	Steeply rolling to badlands	Grazing	VII	Grazing	Federal
		26	N½N½, SE¼NE¼, SE¼NW¼, E½SW¼	320.00	Steeply rolling to badlands	Grazing	VII	Grazing	Federal
		27	NE¼NE¼	40.00	Steeply rolling to badlands	Grazing	VII	Grazing	Federal
		28	W½SW¼	80.00	Steeply rolling to badlands	Grazing	VII	Grazing	Federal
		29	NE¼, E½NW¼, N½SE¼,SE¼SE¼	360.00	Steeply rolling to badlands	Grazing	VII	Grazing	Federal
		30	SW¼NE¼, Lot 4	78.15	Steeply rolling to badlands	Grazing	35/VI:43.15/VII	Grazing	Federal
		31	Lot 1, 2	76.49	Steeply rolling to badlands	Grazing	20/VI:56.49/VII	Grazing	Federal
		32	Lot 2,SW¼NE¼,SE¼NW¼, S½SE¼, SW¼SE¼	215.42	Steeply rolling to badlands	Grazing	95/VI:120.42/VII	Grazing	Federal

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Table 3.- Summarized Description and Classification of Public Domain Lands in Chouteau County, Within the Loma Subarea of the Marias River Area, Montana, 1952 1/ -Continued

Montana Principal Meridian			Subdivision	Acres	General Land Character	Present Land Use	Land Capability Classification 2/	Principal Suitability	Proposed Management
Twp. North	Range East	Sec.							
26	9	35	NE¼NE¼	40.00	Steeply rolling to badlands	Grazing	VII	Grazing	Federal
27	7	1	Lot 1, S½NE¼, N½SE¼	200.14	Steeply rolling	Grazing	VII	Grazing	Federal
		2	NW¼SE¼	40.00	Gently rolling	Grazing	VI	Grazing	Federal
		12	SE¼NE¼, E½SE¼, E½SW¼	200.00	Steeply rolling	Grazing	70/VI:130/VII	Grazing	Federal
		14	SE¼SE¼	40.00	Gently rolling	Grazing	30/VI:10/VII	Grazing	Federal
		22	SE¼SE¼	40.00	Gently to steeply rolling	Grazing	10/VI:30/VII	Grazing	Federal
		23	SW¼, W½SE¼, SE¼SE¼	280.00	Rough to badlands	Grazing	VII	Grazing	Federal
		25	SW¼NE¼, W½SE¼, W½	440.00	Rough badlands	Grazing	VII	Grazing	Federal
		26	N½, N½SE¼, NW¼SW¼	440.00	Rough badlands	Grazing	VII	Grazing	Federal
		27	E½E½, NW¼NE¼	200.00	Rough badlands, rolling	Grazing	VII	Grazing	Federal
		33	NW¼NW¼	40.00	Gently sloping	Grazing	VI	Grazing	Federal
		34	NE¼NE¼, S½NE¼, N½SE¼, NE¼SW¼	240.00	Rough badlands, rolling	Grazing	VII	Grazing	Federal
		35	NW¼, N½SW¼	240.00	Rough badlands, rolling	Grazing	VII	Grazing	Federal
27	8	1	N½, SE¼, E½SW¼	560.16	Steeply rolling	Grazing	200.08/VI, 270.08/VII, 90/VIII	Grazing	Federal
		2	Lot 4, N½SE¼, SE¼SW¼	160.45	Steeply rolling	Grazing	75/VI:55.45/VII, 30/VIII	Grazing	Federal
		5	W½SW¼	80.00	Rough badlands, rolling	Grazing	20/VI:60/VII	Grazing	Federal
		6	All	616.05	Rough badlands, rolling	Grazing	VII	Grazing	Federal
		7	N½NE¼, NE¼NW¼	120.00	Rough badlands, rolling	Grazing	60/VI:60/VII	Grazing	Federal
		8	W½	320.00	Rough badlands, rolling	Grazing	VII	Grazing	Federal
		10	E½SW¼, NE¼SW¼, Lot 2	130.65	Steeply rolling	Grazing	45/VII:85.65/VIII	Grazing	Federal
		11	NE¼NW¼, NW¼SW¼	80.00	Steeply rolling	Grazing	10/VI:30/VII, 40/VIII	Grazing	Federal
		12	NW¼	160.00	Steeply rolling	Grazing	VII	Grazing	Federal
		14	S½NW¼, SW¼	240.00	Rough badlands, rolling steep	Grazing	190/VII:50/VIII	Grazing	Federal
		15	Lot 2, NE¼NE¼, NE¼SE¼, NE¼SW¼, W½W½	290.16	Rough badlands, rolling steep	Grazing	130.16/VII: 160/VIII	Grazing	Federal
		17	N½NE¼, SE¼NE¼, SE¼SE¼, SW¼NW¼	200.00	Rough badlands, rolling steep	Grazing	60/VI:110/VII: 30/VIII	Grazing	Federal

-Continued

Table 3.- Summarized Description and Classification of Public Domain Lands in Chouteau County, Within the Loma Subarea of the Marias River Area, Montana, 1952 1/ -Continued

Montana Principal Meridian									
Twp. North	Range East	Sec.	Subdivision	Acres	General Land Character	Present Land Use	Land Capability Classification 2/	Principal Suitability	Proposed Management
27	8	20	NW¼, W½NE¼, NE¼NE¼	280.00	Gently to steeply rolling	Grazing	80/VI:200/VII	Grazing	Federal
		21	NW¼, W½NE¼, NW¼SW¼	280.00	Gently to steeply rolling	Grazing	80/VI:200/VII	Grazing	Federal
		22	W½NE¼, S½S½, Lots 3,5	301.19	Rough badlands,steeply rolling	Grazing	VII	Grazing	Federal
		23	N½NW¼, W½NE¼, SE¼NW¼, SE¼SW¼, Lots 1, 2, 5	351.09	Rough badlands, steeply rolling	Grazing	140/VII: 211.09/VIII	Grazing	Federal
		26	Lots 1,3, SW¼NE¼, W½SE¼, SE¼NW¼	232.16	Rough badlands, steeply rolling	Grazing	35/VII: 197.16/VIII	Grazing	Federal
		27	N½NE¼, SW¼NE¼, NW¼SE¼, SE¼SE¼	200.00	Rough badlands, steeply rolling	Grazing	125/VII:75/VIII	Grazing	Federal
		34	SW¼SW¼, Lot 5	69.96	Rough badlands, steeply rolling	Grazing	40/VII:29.96/VIII	Grazing	Federal
		35	NW¼NE¼, NE¼NW¼, SW¼SW¼	120.00	Rough badlands, steeply rolling	Grazing	10/VI:10/VII: 100/VIII	Grazing	Federal
28	8	1	E½E½	159.27	Rough rolling badlands	Grazing	20/VI:139.27/VII	Grazing	Federal
		2	SW¼SE¼	40.00	Rough rolling badlands	Grazing	VII	Grazing	Federal
		3	Lot 1, SW¼NW¼	78.92	Rough rolling badlands	Grazing	50/VI:28.92/VII	Grazing	Federal
		5	SW¼SE¼	40.00	Rough rolling badlands	Grazing	30/VI:10/VII	Grazing	Federal
		8	NW¼NW¼, NW¼SW¼	80.00	Rough rolling badlands	Grazing	70/VI:10/VII	Grazing	Federal
		10	N½NW¼	80.00	Rough rolling badlands	Grazing	VII	Grazing	Federal
		11	NE¼	160.00	Rough rolling badlands	Grazing	90/VI:70/VII	Grazing	Federal
		24	W½, N½SE¼, SW¼SE¼	440.00	Rough rolling badlands	Grazing	50/VI:270/VII: 120/VIII	Grazing	Federal
		25	W½NE¼, S½SW¼	159.91	Rough rolling badlands	Grazing	80/VII: 79.91/VIII	Grazing	Federal
		29	SE¼SE¼	40.00	Rough rolling badlands	Grazing	VII	Grazing	Federal
		31	SE¼, E½SW¼, Lot 4	274.76	Rough rolling badlands	Grazing	VII	Grazing	Federal
		32	NE¼, S½NW¼, SW¼	400.00	Rough rolling badlands	Grazing	VII	Grazing	Federal
		35	Lot 1	24.01	Rough rolling badlands	Grazing	VII	Grazing	Federal
28	9	4	Lots 3,4,5, NW¼NE¼	86.50	Rough rolling badlands	Grazing	VII	Grazing	Federal
		6	Lot 11, 16	61.52	Rough rolling badlands	Grazing	VII	Grazing	Federal
		8	E½NE¼, NE¼SE¼	120.00	Rough rolling badlands	Grazing	VII	Grazing	Federal

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Table 3.- Summarized Description and Classification of Public Domain Lands in Chouteau County, Within the Loma Subarea of the Marias River Area, Montana, 1952 1/ -Continued

Montana Principal Meridian									
Twp. North	Range East	Sec.	Subdivision	Acres	General Land Character	Present Land Use	Land Capability Classification 2/	Principal Suitability	Proposed Management
28	9	9	W½NW¼, NW¼SW¼	120.00	Rough rolling badlands	Grazing	VII	Grazing	Federal
		19	SE¼NE¼, SE¼, SE¼SW¼	240.00	Rough rolling badlands	Grazing	VII	Grazing	Federal
		20	NW¼	160.00	Rough rolling badlands	Grazing	VII	Grazing	Federal
		30	W½E½, E½W½, Lot 2	351.39	Rough rolling badlands	Grazing	VII	Grazing	Federal
		31	Lots 1, 2, E½NW¼	142.75	Rough rolling badlands	Grazing	VII	Grazing	Federal

Totals by County	Total Acres	Acres by Land Capability Classes			
		V	VI	VII	VIII
Chouteau (Grand Total)	19,986.11		1,565.74	13,123.81	5,296.56

1/ This table has been compiled from the individual tract classification reports of the Bureau of Land Management, Region III, Billings, Montana.

2/ See table 9 for detailed description of land-use capability classification.

LOST RIVER SUBAREA

Description

This subarea is located in northwestern Hill County along the Canadian border, 30 miles directly north of Hingham, Montana, which is on the Great Northern Railroad and U. S. Highway No. 2. The subarea is small, containing a gross acreage of 15,470 acres; 3,125 of which are unreserved public domain, 400 acres First Form Reclamation withdrawal, 640 acres State school lands and the remaining 11,305 acres are privately owned lands. The subarea is along Lost River and in the Milk River Valley at the upper end of the Fresno Reservoir. The entire area is covered with glacial drift of the Pleistocene Age. Most of the area is rough, broken badlands with many steep coulees and cut banks. About 30 per cent of the public domain lands lie on gently sloping benches and 70 per cent are located in the rough badland breaks. The area lies in an elevational belt of between 2,500 and 3,000 feet with no particularly prominent physiographic features. Milk River crosses part of the area and Lost River crosses the entire tract. Lost River is a small stream which becomes very swift and turbulent during the high spring runoff season.

Soils

The parent material for all the soils in this subarea is glacial drift which was spread by the Keewatin Ice Sheet during the late Wisconsin glaciation. The drift deposited over the area varies in thickness from place to place mainly dependent on the surface relief. The soils on this tract are all the grayish brown grazing soils of the stony and sandy phase of the Scobey and Joplin series. In much of the badlands area they can hardly be termed soils as they include a wide range of stony, shaley and sandy surface covering over a rough broken country. These badlands strips occur where erosion and dissection of soft rocks have produced a bare and rugged landscape and along steep stream slopes where the silty soils and the soft silty shales dissolve under the action of flowing water leaving a barren surface with deep gullies.

Climate

The weather records at Simpson, Montana, which is located seven miles southeast of this subarea, show an average annual precipitation of 9.97 inches. An average annual low temperature for the same period was -35 degrees and the average high was 99 degrees. The average number of days in the growing season was 91. These Weather Bureau records are for the years 1938 to 1950, inclusive. Residents of the subarea claim that the temperature has dropped below 50 degrees below zero many times in the past decade. Winds are generally from the west and northwest and often attain a velocity of over 50 miles per hour. Occasionally chinook winds will take off all the snow in January and allow winter grazing for livestock.

Land Use

There is no surface evidence of either minerals or coal in this subarea. Veins of subbituminous coal less than 30 inches thick underlie the area. There is no public domain in this subarea suitable for farming. The only crops raised in the subarea are used for livestock feed. Some oats and barley are planted along Milk River and these grains are generally cut for hay. Stock are grazed in the rough badlands along Milk and Lost Rivers and then wintered on the home ranches along Milk River. In favorable winters, stock may be grazed yearlong by supplying them with supplementary feed in the form of concentrates.

There is one spring development on the Aageson range on the SE¼NW¼, Sec. 11, T. 37N; R. 10E, constructed by the Bureau of Land Management in cooperation with the lessee. A concrete tank was constructed and the water piped in from a spring. This spring furnishes sufficient water to service 150 to 200 head of cattle yearlong. The writer visited this spring in 1950 and alkali had practically destroyed the use of the tank. The permittee was preparing to install a redwood tank that would be unaffected by the alkaline water.

This subarea has been quite badly overgrazed and trailed in the past and the evidence of this misuse is still apparent. In past years when horses were a definite range pest and were crowded off the accessible range, they were forced back into these rough badlands of the Lost River country and, along with the roving bands of sheep, practically denuded the area. However, there have been very few horses here in the past decade and the range has been reasonably well managed by the present lessees and is showing marked improvement.

Public Domain Land Classification

Most of the public domain lands in this subarea are rough and steep lands in badland areas. Their classification is as follows:

	Land Use Capability Class		Total Area
	VI	VII	
Acres	945	2,180	3,125
Per Cent	30.2	69.8	100

The badlands areas are in poor condition. The land there is low grade Class VII. The subarea can support 658 animal unit months of grazing at a rate of 5 acres per animal unit month. The description and classification of each tract of public domain in this subarea is presented in table 4. A complete report of examination and classification has been made for each tract of public domain. These reports are on file at the Region III office of the Bureau of Land Management in Billings, Montana.

Recommendations

There are 3,125 acres of public domain lands in this subarea contained in five separate tracts. The largest tract lies along the Canadian line and extends south along Lost River in Sections 2,3,4,5, 9,10,11 and 15; T. 37 N; R. 10 E; M.P.M. and contains 2,285 acres. These lands are all rough badlands suitable only for watershed and wildlife use. Some deer and antelope graze over the area and generally retreat to this area during the hunting season.

In Sections 13, 14, 22, 23, and 24 in T. 37 N; R. 10 E, there are 720 acres of unreserved public domain land and 400 acres of First Form Reclamation Withdrawals. There is also the NW¼NW¼, Section 19, T. 37 N; R. 11 E which is public domain land and adjacent to this tract. This 760 acres of public domain land is in two separate tracts, isolated from other public domain lands by privately owned and Reclamation land. These lands are all suitable only for grazing and are of limited use for game range. There is no need for these isolated tracts to remain in their present status and they should be offered for sale. The State of Montana is considering lands in the subarea for exchange.

In Section 17, T. 37 N; R. 10 E, the E½NE¼ is unreserved public domain and is isolated from all other Federal lands by privately owned and State lands. This eighty has no timber, water, farmlands or improvements on it and is not needed in any public land program. It is recommended that it be offered at public sale.

Table 4.- Summarized Description and Classification of Public Domain Lands in Hill County, Within the Lost River Subarea of the Marias River Area, Montana, 1952 1/

Montana Principal Meridian									
Twp. North	Range East	Sec.	Subdivision	Acres	General Land Character	Present Land Use	Land Capability Classification 2/	Principal Suitability	Proposed Management
37	10	2	SW¼SW¼	40.00	Rough badlands	Grazing	VII	Wildlife, Watershed	Game Range
		3	Lots 9,10, S½NW¼, S½	433.05	Rough badlands	Grazing	VII	Wildlife, Watershed	Game Range
		4	Lots 9,10,11,12,S½NE¼, N½SE¼, NE¼NW¼, SE¼SE¼	306.12	Rough badlands	Grazing	VII	Wildlife, Watershed	Game Range
		5	Lots 9,10,11,12	66.32	Rough badlands	Grazing	VII	Wildlife, Watershed	Game Range
		9	E½NE¼, SW¼NE¼	120.00	Rough badlands	Grazing	70/VI:50/VII	Wildlife, Watershed	Game Range
		10	N½, N½S½, S½SW¼	560.00	Rough badlands	Grazing	220/VI:340/VII	Wildlife, Watershed	Game Range
		11	All	640.00	Rough badlands	Grazing	170/VI:470/VII	Wildlife, Watershed	Game Range
		13	W½SE¼, SW¼	240.00	Rough badlands	Grazing	135/VI:105/VII	Grazing	Private
		14	SE¼	160.00	Rough badlands	Grazing	100/VI:60/VII	Grazing	Private
		15	N½NW¼, SW¼NW¼	120.00	Rough badlands	Grazing	15/VI:105/VII	Wildlife	Game Range
		17	E½NE¼	80.00	Gently to steeply rolling	Grazing	VII	Grazing	Private
		22	N½NE¼, SE¼NE¼	120.00	Gently to steeply rolling	Grazing	105/VI:15/VII	Grazing	Private
		23	S½N½	160.00	Gently to steeply rolling	Grazing	50/VI:110/VII	Grazing	Private
		24	NE¼NE¼	40.00	Gently to steeply rolling	Grazing	VI	Grazing	Private
37	11	19	NW¼NW¼	40.00	Gently to steeply rolling	Grazing	VI	Grazing	Private

Total by County	Total Acres	Acres by Land Capability Classes			
		V	VI	VII	VIII
Hill (Grand Total)	3,125.49		945.00	2,180.49	

1/ This table has been compiled from the individual tract classification reports of the Bureau of Land Management, Region III, Billings, Montana.

2/ See table 9 for detailed description of land-use capability classification.

MARIAS RIVER SUBAREA

Description

This unit of the Marias River area lies along the Marias River from the proposed Tiber Dam Site to Cut Bank Creek in Glacier County as shown on the map with this report. The subarea is located a few miles south of the main line of the Great Northern Railway and U.S. Highway No. 2, and is near the cities of Cut Bank and Shelby. The total area of this subarea is 256,106 acres, of which 19,486 acres or 7½ per cent is unreserved public domain land; 2,469 acres or 1 per cent is powersite withdrawals; 5,253 acres or 2 per cent is Reclamation withdrawals; 16,108 acres or 6 per cent is State lands; 5,064 acres or 2 per cent is Blackfeet Indian Reservation lands; and 207,726 acres or 81 per cent is privately owned lands.

Tiber Dam, now under construction, is located in this subarea on the section line between Section 28 and 33, T. 30 N; R. 5 E. Water will be stored up to the 2,992.3 foot contour line along the Marias River to a point eight miles southeast of Shelby, Montana and up Willow Creek nearly to Devon. This reservoir will have maximum storage of 1,337,000 acre feet from which it is proposed to irrigate some 127,000 acres of bench land on the north side of the river.

Under the present plan for development of the Lower Marias Unit 31,650 acres are to be served by pumping, however, these lands are now placed in a deferred development status because of their withdrawal from the Irrigation District. Return flow from 70,000 acres of irrigable land augmented by diversion of about 4,000 acre-feet annually from Tiber Reservoir will irrigate by gravity 17,000 acres in the Big Sandy Valley. The remaining 78,350 acres will be irrigated by diversion from Tiber Reservoir gravity flow. Water will be released to the Marias Canal from Tiber Reservoir through outlet works adjacent to the left abutment of the dam. The outlet works will discharge directly into Tunnel No. 1, which will be 1.1 miles long, with an initial capacity of 2,450 c.f.s. The Marias Canal will have a capacity of 2,200 c.f.s. for approximately the first 40 miles until it reaches the Kenilfeeder branch canal.

A hydroelectric installation is proposed to generate power which will be transmitted eight miles to a pumping plant where water is lifted into two pump canals which will serve 31,650 acres. Lands to be served by pumping are in a deferred development status at the present time. The Tiber Power Plant will develop 2,000 kilowatts by the proposed installations, with an annual initial production of 17,531,000 kilowatt-hours. The maximum fluctuation of Tiber Reservoir would be 25.3 feet between top of the conservation storage and dead pool level. Sedimentation records for the Marias River indicate that the annual sediment yield at the Tiber Dam would be 470 acre feet and that the 50 year deposit would be 23,500 acre feet with a density of 66.7 pounds per cubic feet.

The Cut Bank Geological structure reaches into Township 32 N; Range 5 W, which is on the extreme western edge of this unit. Some producing wells are located in this subarea. There are no other proven areas in this unit. However, it is possible that additional productive areas may be found along the Marias River to the east. There is no evidence or likely occurrences of other mineral deposits in this area. Geological Circular No. 53, "Coal Resources of Montana" indicates that there may be some veins of subbituminous coal less than thirty inches thick in the Liberty County part of the subarea.

Public Domain Land Classification

All the public domain lands in this subarea are primarily suited for grazing. Any tracts along the proposed Tiber Reservoir that might have value for egress and ingress or for campsites, boat landings and wharves have been withdrawn by the Bureau of Reclamation.

The summarized classification of each tract of public domain land in this subarea is presented in table 5. This table was prepared from reports prepared for each tract, which are on file at the Region III office of the Bureau of Land Management. The classification and grazing capacity of the public domain lands in the subarea by counties are as follows:

County	Area Public Domain (Acres)	Land Use Capability (Acres)				Grazing Capacity AUMS
		V	VI	VII	VIII	
Glacier	1,525		938	587		408
Liberty	998		238	760		216
Pondera	5,242	220	2,533	2,459	30	1,205
Toole	11,721		2,455	9,025	241	2,531
Total	19,486	220	6,164	12,831	271	4,360

All of the public domain lands in the area are covered with grass and there is very little erosion on any of it. Condition of these lands range from good to excellent. The proper stocking rate is 4½ acres per animal unit month.

Recommendations

The State of Montana is considering the selection of all the unreserved public domain lands in this subarea for the propsed Glacier Park-State Exchange. There appears to be no need for these lands to remain in Federal ownership. In the event that some tracts are not included in the proposed exchange, it is recommended that they be classified as suitable for disposal and offered at public sale.

Table 5.- Summarized Description and Classification of Public Domain Lands by Counties Within the Marias River Subarea of the Marias River Area, Montana, 1952 1/

Montana Principal Meridian			Subdivision	Acres	General Land Character	Present Land Use	Land Capability Classification 2/	Principal Suitability	Proposed Management
Twp. North	West Range	Sec.							
Glacier County									
32	5	2	SW¼NW¼	40.00	Gently rolling	Grazing	VI	Grazing	Private
		3	NW¼SW¼	40.00	Gently rolling	Grazing	VI	Grazing	Private
		4	NE¼SE¼	40.00	Gently rolling	Grazing	VI	Grazing	Private
		4	NE¼NW¼, S½SW¼	120.00	Gently rolling	Grazing	VI	Grazing	Private
		5	Lots 5 (23.35), 6(37.19), 7 (12.45)	72.99	Gently rolling	Grazing	VI	Grazing	Private
		7	Lots 2(21.23), 3(38.61), 5 (9.96)	69.80	Steeply rolling	Grazing	VII	Grazing	Private
		7	Lot 1	26.66	Steeply rolling	Grazing	VII	Grazing	Private
		8	Lot 1 (38.89), SW¼NW¼, NW¼SW¼	118.89	Steeply rolling	Grazing	80/VI:38.89/VII	Grazing	Private
		8	SE¼NE¼	40.00	Steeply rolling	Grazing	VII	Grazing	Private
		17	W½NE¼, NE¼NW¼	120.00	Gently rolling	Grazing	VI	Grazing	Private
		17	S½SW¼	80.00	Steep and rough	Grazing	VII	Grazing	Private
		20	Lot 1	46.87	Steep and rough	Grazing	VI	Grazing	Private
		27	E½SW¼	80.00	Steep and rough	Grazing	50/VI:30/VII	Grazing	Private
		28	Lots 1 (38.83), 2(20.27), SE¼NW¼, SW¼NE¼, NW¼SE¼	179.10	Steep and rough	Grazing	145/VI: 34.10/VII	Grazing	Private
		33	Lots 1(20.89), 2(17.87)	38.76	Steep and rough	Grazing	VI	Grazing	Private
		34	Lots 4,5,6, S½NW¼	155.59	Steep and rough	Grazing	110/VI: 45.59/VII	Grazing	Private
		34	Lots 2,3, NE¼NE¼	93.58	Steep and rough	Grazing	35/VI: 58.58/VII	Grazing	Private
		35	Lots 1,2,6, N½SE¼	163.20	Steep and rough	Grazing	VII	Grazing	Private
Liberty County									
	East								
30	5	18	Lot 2	38.61	Steeply rolling	Grazing	VI	Grazing	Private

-Continued

Table 5.- Summarized Description and Classification of Public Domain Lands by Counties Within the Marias River Subarea of the Marias River Area, Montana, 1952 1/ -Continued

Montana Principal Meridian			Subdivision	Acres	General Land Character	Present Land Use	Land Capability Classification 2/	Principal Suitability	Proposed Management
Twp. North	Range East	Sec.							
Liberty County									
30	4	2	Lots 3,4, S½N½, S½	559.76	Steeply rolling	Grazing	VII	Grazing	Private
		7	E½NW¼	80.00	Steeply rolling	Grazing	VI	Grazing	Private
		11	N½N½, SE¼NE¼	200.00	Steeply rolling	Grazing	VII	Grazing	Private
		13	NW¼NE¼, SE¼NW¼	80.00	Steeply rolling	Grazing	VI	Grazing	Private
		18	NE¼SE¼	40.00	Steeply rolling	Grazing	VI	Grazing	Private
Pondera County									
North	West								
30	1	20	SE¼SE¼	40.00	Steeply rolling	Grazing	30/VI:10/VII	Grazing	Private
		21	SW¼NW¼, NW¼SW¼, E½NW¼' NE¼	320.00	Steeply rolling	Grazing	190/VI:130/VII	Grazing	Private
		24	NE¼	160.00	Steeply rolling	Grazing	VI	Grazing	Private
		26	W½NW¼	80.00	Steeply rolling	Grazing	VII	Grazing	Private
		29	SW¼NE¼, W½SE¼	120.00	Steeply rolling	Grazing	VII	Grazing	Private
		31	Lot 1, SW¼SE¼, NE¼SE¼	118.97	Steeply rolling	Grazing	VII	Grazing	Private
		32	N½SW¼, SE¼SW¼, S½SE¼	200.00	Steeply rolling	Grazing	VII	Grazing	Private
		34	SW¼SE¼	40.00	Steeply rolling	Grazing	VI	Grazing	Private
30	2	2	SE¼NE¼, NE¼SE¼	80.00	Gently rolling	Grazing	VI	Grazing	Private
		4	NE¼SE¼, S½SE¼	120.00	Gently rolling	Grazing	VI	Grazing	Private
		9	E½NE¼	80.00	Gently rolling	Grazing	VI	Grazing	Private
		10	NE¼SW¼, N½SE¼, SE¼SE¼	160.00	Gently rolling	Grazing	VI	Grazing	Private
		11	All	640.00	Gently rolling	Grazing	VI	Grazing	Private
		15	NE¼NE¼	40.00	Gently rolling	Grazing	VI	Grazing	Private
		31	SW¼NE¼	40.00	Gently rolling	Grazing	VI	Grazing	Private
30	3	2	Lots 2,3,4, S½NW¼, N½SW¼, SW¼SW¼, SW¼NE¼, NW¼SE¼	401.87	Gently sloping	Grazing	80/V:321.87/VI	Grazing	Private
		3	Lots 1,2, S½NW¼, SE¼, E½SW¼, SW¼SW¼	441.37	Gently sloping	Grazing	140/V:301.37/VI	Grazing	Private
		25	NE¼SE¼	40.00	Gently sloping	Grazing	VI	Grazing	Private

-Continued

Table 5.- Summarized Description and Classification of Public Domain Lands by Counties Within the Marias River Subarea of the Marias River Area, Montana, 1952 1/ -Continued

Montana Principal Meridian									
Twp. North	Range West	Sec.	Subdivision	Acres	General Land Character	Present Land Use	Land Capability Classification 2/	Principal Suitability	Proposed Management
Pondera County									
31	3	17	S½SW¼, NW¼SW¼	120.00	Steeply rolling	Grazing	VII	Grazing	Private
		18	SE¼SE¼	40.00	Steeply rolling	Grazing	VII	Grazing	Private
		19	NE¼NE¼	40.00	Steeply rolling	Grazing	VII	Grazing	Private
		20	N½N½, SE¼	320.00	Steeply rolling	Grazing	VII	Grazing	Private
		21	N½, N½S½, SW¼SW¼	520.00	Steeply rolling	Grazing	VII	Grazing	Private
		28	NW¼, NW¼NE¼, NW¼SW¼	240.00	Steeply rolling	Grazing	VII	Grazing	Private
		29	N½NE¼	80.00	Steeply rolling	Grazing	VII	Grazing	Private
31	4	15	SE¼SE¼	40.00	Steeply rolling	Grazing	10/VI:20/VII: 10/VIII	Grazing	Private
		22	N½NE¼	80.00	Steeply rolling	Grazing	VII	Grazing	Private
		24	NE¼, E½W½	320.00	Gently rolling	Grazing	150/VI:150/VII: 20/VIII	Grazing	Private
		25	W½SW¼	80.00	Steeply rolling	Grazing	60/VI/20/VII	Grazing	Private
		26	SE¼, SE¼SW¼, SW¼NE¼	240.00	Steeply rolling	Grazing	70/VI:170/VII	Grazing	Private
Toole County									
North	East								
30	1	8	NE¼NW¼, SE¼NE¼	80.00	Steeply rolling	Grazing	60/VII:20/VIII	Grazing	Private
		17	S½N½, SE¼	320.00	Steeply rolling	Grazing	VII	Grazing	Private
		18	SE¼NE¼, SE¼SE¼	80.00	Steeply rolling	Grazing	VII	Grazing	Private
		19	Lot 1, NE¼NW¼, N½NE¼, SW¼NE¼, NW¼SE¼	239.72	Steeply rolling	Grazing	VI	Grazing	Private
		20	S½NE¼, NE¼NE¼, NE¼SW¼, SE¼NW¼	200.00	Steeply rolling	Grazing	VI	Grazing	Private
		21	NE¼NW¼, NW¼SW¼	80.00	Steeply rolling	Grazing	VI	Grazing	Private
		22	NE¼SE¼	40.00	Steeply rolling	Grazing	VI	Grazing	Private
		25	SE¼NE¼, NE¼SE¼, S½SE¼	160.00	Steeply rolling	Grazing	VI	Grazing	Private

-Continued

Table 5.- Summarized Description and Classification of Public Domain Lands by Counties Within the Marias River Subarea of the Marias River Area, Montana, 1952 1/ —Continued

Montana Principal Meridian									
Twp. North	Range East	Sec.	Subdivision	Acres	General Land Character	Present Land Use	Land Capability Classification 2/	Principal Suitability	Proposed Management
Toole	County								
30	2	18	Lot 4, NW¼SE¼	80.46	Rough badlands	Grazing	40/VII:40.46/VIII	Grazing	Private
		25	W½W½	160.00	Rough badlands	Grazing	20/VII:140/VIII	Grazing	Private
		26	NE¼NE¼, SE¼, E½SW¼	280.00	Rough badlands	Grazing	VII	Grazing	Private
		27	N½, SW¼	480.00	Rough badlands	Grazing	VII	Grazing	Private
		34	NE¼NW¼	40.00	Rough badlands	Grazing	VII	Grazing	Private
		35	NE¼, SE¼NW¼, N½SW¼, SW¼SW¼	320.00	Rough badlands	Grazing	VII	Grazing	Private
30	3	28	SW¼. NE¼NW¼	200.00	Steeply rolling	Grazing	80/VI :120/VII	Grazing	Private
		29	E½SE¼	80.00	Steeply rolling	Grazing	30/VI :50/VII	Grazing	Private
		30	N½N½, Lots 3,4, E½SW¼, W½SE¼	394.94	Rough badlands	Grazing	VII	Grazing	Private
		31	NE¼NW¼, NW¼NE¼	80.00	Rough badlands	Grazing	VII	Grazing	Private
		33	E½NW¼	80.00	Rough badlands	Grazing	60/VI:20/VII	Grazing	Private
		34	NW¼NW¼, SW¼NE¼, W½SE¼	160.00	Rough badlands	Grazing	VII	Grazing	Private
		35	N½NW¼	80.00	Rough badlands	Grazing	VII	Grazing	Private
		27	SE¼SW¼	40.00	Rough badlands	Grazing	VII	Grazing	Private
30N	1W	1	Lot 5	39.12	Steeply rolling	Grazing	30/VI:9.12/VII	Grazing	Private
		2	Lots 1,4	52.20	Steeply rolling	Grazing	20/VI:19.60/VII, 12.60/VIII	Grazing	Private
		6	Lots 1,4,5,7,14,15,16	217.94	Steeply rolling	Grazing	177.41/VI: 40.53/VII	Grazing	Private
		7	Lots 1,2, E½NW¼	156.20	Steeply rolling	Grazing	60/VI:96.20/VII	Grazing	Private
		8	Lot 12, NE¼NW¼	69.83	Steeply rolling	Grazing	40/VI:29.83/VII	Grazing	Private
		9	Lot 2	28.16	Steeply rolling	Grazing	VII	Grazing	Private
		13	SW¼NE¼, SE¼	200.00	Steeply rolling	Grazing	VI	Grazing	Private
		14	N½NE¼, NE¼NW¼	120.00	Steeply rolling	Grazing	40/VI:80/VII	Grazing	Private
31N	1W	19	NE¼NE¼	40.00	Rough to rolling	Grazing	VI	Grazing	Private
		29	SW¼SE¼	40.00	Rough to rolling	Grazing	VII	Grazing	Private
		30	Lot 1, NE¼NW¼, NW¼NE¼	118.57	Rough to rolling	Grazing	53.57/VI:65/VII	Grazing	Private

—Continued

Table 5.- Summarized Description and Classification of Public Domain Lands by Counties Within the Marias River Subarea of the Marias River Area, Montana, 1952 1/ -Continued

Montana Principal Meridian									
Twp. North	Range West	Sec.	Subdivision	Acres	General Land Character	Present Land Use	Land Capability Classification 2/	Principal Suitability	Proposed Management
Toole County									
31	1	31	Lots 2,3.4.5. NE¼NE¼, NE¼SW¼, S½SE¼	257.88	Rough to rolling	Grazing	65/VI:192.88/VII	Grazing	Private
31	2	1	SW¼NE¼, SE¼NW¼, E½SW¼, SE¼	320.00	Steeply rolling	Grazing	VII	Grazing	Private
		2	L.1,2,SENE,W½SE¼,SESW	239.58	Steeply rolling	Grazing	VII	Grazing	Private
		11	NE¼NW¼, W½NE¼, NE¼SE¼, SE¼SW¼	200.00	Steeply rolling	Grazing	VII	Grazing	Private
		12	W½	320.00	Steeply rolling	Grazing	VII	Grazing	Private
		13	W½, SW¼NE¼, N½SE¼	440.00	Steeply rolling	Grazing	VII	Grazing	Private
		14	S½SW¼, NE¼SW¼	120.00	Steeply rolling	Grazing	VII	Grazing	Private
		18	Lot 4	35.96	Steeply rolling	Grazing	VII	Grazing	Private
		19	Lots 3,4,5,11,14,NE¼NE¼	172.07	Steeply rolling	Grazing	VII	Grazing	Private
		21	Lots 3, 10	23.11	Steeply rolling	Grazing	VII	Grazing	Private
		22	NE¼SW¼	40.00	Steeply rolling	Grazing	VII	Grazing	Private
		23	E½SW¼, SE¼NE¼, E½SE¼	200.00	Steeply rolling	Grazing	VII	Grazing	Private
		24	All	640.00	Steeply rolling	Grazing	VII	Grazing	Private
		25	Lots 1,3, NE¼SW¼, SE¼SE¼	129.02	Steeply rolling	Grazing	VII	Grazing	Private
		26	NE¼NW¼	40.00	Steeply rolling	Grazing	VII	Grazing	Private
		27	Lot 2	3.41	Steeply rolling	Grazing	VIII	Grazing	Private
31	3	5	Lots 1,2	80.32	Steep and rough	Grazing	30/VI:50.32/VII	Grazing	Private
		6	Lot 2, SW¼NE¼, W½SE¼, SE¼SW¼	200.03	Steep and rough	Grazing	20/VI:180.03/VII	Grazing	Private
		7	Lot 1, NE¼NW¼, N½NE¼, SE¼NE¼	193.05	Steep and rough	Grazing	VII	Grazing	Private
		15	SE¼SE¼	40.00	Steep and rough	Grazing	10/VI:30/VII	Grazing	Private
		22	E½NE¼, NE¼SE¼	120.00	Steep and rough	Grazing	50/VI:70/VII	Grazing	Private
		23	W½SW¼	80.00	Steep and rough	Grazing	50/VI:30/VII	Grazing	Private
		24	E½SE¼	80.00	Steep and rough	Grazing	VII	Grazing	Private
		25	N½NE¼, SW¼NE¼, NE¼SW¼, S½SW¼	240.00	Steep and rough	Grazing	VII	Grazing	Private

-Continued

Table 5.- Summarized Description and Classification of Public Domain Lands by Counties Within the Marias River Subarea of the Marias River Area, Montana, 1952 1/ -Continued

Montana Principal Meridian			Subdivision	Acres	General Land Character	Present Land Use	Land Capability Classification 2/	Principal Suitability	Proposed Management
Twp. North	Range West	Sec.							
Toole	County								
31	3	26	S½SE¼	80.00	Steep and rough	Grazing	VII	Grazing	Private
		27	Lot 2	10.76	Steep and rough	Grazing	VII	Grazing	Private
		34	N½NE¼, SE¼NE¼	120.00	Steep and rough	Grazing	100/VI:20/VII	Grazing	Private
		35	N½, N½SE¼, NE¼SW¼	440.00	Steep and rough	Grazing	VII	Grazing	Private
32	3	31	W½SE¼	80.00	Steeply rolling	Grazing	VII	Grazing	Private
31	4	4	Lot 3, S½NW¼, N½SW¼, SE¼SW¼, S½SE¼	321.31	Steeply rolling	Grazing	100/VI: 221.31/VII	Grazing	Private
		5	Lots 1,2,3,5,6,7,9, S½N½, NW¼SW¼, NE¼SE¼	455.66	Steeply rolling	Grazing	98.63/VI: 357.03/VII	Grazing	Private
		6	Lot 7, NE¼SE¼	60.06	Steeply rolling	Grazing	VII	Grazing	Private
		9	NE¼NE¼, Lot 7	49.97	Steeply rolling	Grazing	VII	Grazing	Private
		10	NW¼SE¼, W½NW¼, NE¼SW¼, Lots 3, 4	210.65	Steeply rolling	Grazing	VII	Grazing	Private
		12	E½NE¼, SW¼NE¼, NW¼SE¼, E½SW¼	240.00	Steeply rolling	Grazing	40/VI:200/VII	Grazing	Private
		13	NW¼NW¼	40.00	Steeply rolling	Grazing	VII	Grazing	Private
		14	NE¼NE¼	40.00	Steeply rolling	Grazing	VII	Grazing	Private
32	4	27	S½SW¼	80.00	Steeply rolling	Grazing	VI	Grazing	Private
		31	Lots 2,3,4,SE¼NW¼, SW¼NE¼ E½SW¼. W½SE¼	335.71	Steeply rolling	Grazing	260/VI: 75.71/VII	Grazing	Private
		32	SE¼NE¼, NE¼SE¼, SW¼SE¼, SE¼SW¼	160.00	Steeply rolling	Grazing	VII	Grazing	Private

-Continued

Table 5.- Summarized Description and Classification of Public Domain Lands by Counties Within the Marias River Subarea of the Marias River Area, Montana, 1952 1/ -Continued

Totals by Counties	Total Acres	Acres by Land Capability Classes			
		V	VI	VII	VIII
Glacier	1,525.44		938.62	586.22	
Liberty	998.37		238.61	759.76	
Pondera	5,242.21	220.00	2,533.24	2,458.97	30.00
Toole	11,720.50		2,454.33	9,024.89	241.28
Grand Total	19,486.52	220.00	6,164.80	12,830.44	271.28

1/ This table has been compiled from the individual tract classification reports of the Bureau of Land Management, Region III, Billings, Montana.

2/ See table 9 for detailed description of land-use capability classification.

SWEETGRASS HILLS SUBAREA

Description

This subarea is located in northwestern Toole and northeastern Liberty Counties along the Canadian boundary, 25 to 30 miles north of the main line of the Great Northern Railway and U. S. Highway No. 2, as shown on the map. The towns of Chester, Lother, Devon and Galata, along this railroad and highway south of the subarea are the shipping points for the area. The gross area of the subarea is 135,484 acres; of which 11,461 acres or 8½ per cent is unreserved and unappropriated public domain lands, 8,800 acres or 6½ per cent is State lands, and 115,223 acres or 85 per cent is privately owned land.

The most pronounced physiographic feature of this subarea and of this part of Montana is the Sweetgrass Hills. These hills are a group of three lacolithic centers in the northwestern part of Liberty and the northeastern part of Toole Counties, near the international boundary. The summit of each hill consists of one or more large masses of porphyry, from which the sedimentary rock dips away in all directions. In the sedimentary rocks near the buttes there are many dikes and sills of igneous rock, some of which are porphyritic and others have a dark color and a texture somewhat resembling that of mica schist. Geologically the structure consists of igneous buttes reaching an altitude of 1,500 to 2,000 feet above the plains. During the Keewatin Glacial Invasion, this subarea was covered by a great ice sheet and when the ice receded it left a deposit of glacial debris 10 to 100 feet thick. Many of the original valleys were filled by glacial drift. In the process of the glacial grinding, new valleys were formed.

The Sweetgrass Hills of the present are much as the ice sheet modified the original structure, but though the forms are similar, erosion has had its effect on the surface. The Sweetgrass Hills are divided into three portions: West Butte, Middle Butte, and East Butte. The slopes of these buttes are spotted with thick stands of pole size lodgepole pine and Douglas fir. There are many small canyon-like coulees and each usually has a live spring. Just south of this group are two small but very conspicuous igneous buttes; Haystack and Grassy Buttes. These names aptly describe these two buttes. This subarea is drained to the south by Willow and Trail Creeks and to the north by McDonald, Sage and Half Breed Creeks, and to the east by Laird and Sage Creeks.

Soils

The soils in this relatively small subarea vary widely in character and are comprised of at least five important and distinct types. The various stages of soil development are a result of interacting factors; relief, parent rock upthrusts and glaciation, plus the effect of an arid climate and the influence of vegetation and animal life. The top of the buttes in the Sweetgrass Hills consists of barren ridges, rocky ledges, talus slopes and rough semi-forested to forested areas. The soil is nontillable and the area, being practically inaccessible, has a low livestock carrying capacity.

On the slopes immediately below the rough broken area of the peaks is the stony phase of the Blaine loam. These areas are identified by a shallow stony loam overlying sand and shale. The soil is dark and filled with stone fragments where tree growth occurs, but on the bare slopes the top horizon is a dark grayish brown. This soil type is identified with land too rough and steep for cultivated crops, but the tall grasses associated with weeds and browse affords a fairly good forage cover for livestock grazing. Just below the Blaine stony loam area is a series of dark grayish soils, thicker in depth than the Blaine series but less than six inches thick. The upper horizon is mellow and crumbly and bound together by grass roots. The vegetative cover is grass with a grama - Stipa association. Glacial boulders and gravel are scattered throughout the surface soil.

Near the base of the hills on the rolling surface and on gentle slopes is found the Williams loams. These soils are differentiated by being dark in color, fading from the surface downward to a grayish brown at 18 inches in depth. Lime is generally present at about a foot in depth. When this soil is in cultivation it produces good stands of grain and hay and is mellow and pliable.

Nondifferentiated alluvial soils occur in the rocky creek bottoms. Near the foothills they contain a large amount of organic material washed down from the high lands by the erosion of the soil types previously classified. In deep coulees these alluvial soils show a mixture of a great variety of rock materials. Indications are that this soil type in the coulees is of firm structure and would not cause undue reservoir loss by excessive percolation.

Climate

The climate records are taken from the Gold-Butte weather station, which is located near the center of this subarea. The average annual precipitation for the past 40 years is 13.52 inches. An average of 9.66 inches of this total falls during the growing season, April to September. The average temperature for January is 15.4 degrees and for July 65.5 degrees. The minimum recorded temperature is -47 degrees and the maximum is 105 degrees. The area is subject to strong westerly and southwesterly winds, and occasionally strong north winds come out of Canada, especially during the fall and winter months. The winds attain their greatest velocity and persistence during the winter and early spring months. In dry seasons winds may cause considerable soil drifting. Warm chinook winds may occur in this area during the winter months and at the lower elevations often clear the winter grazing lands of snow. Hail storms of varying intensity may occur locally during the summer months.

Minerals, Gas and Oil

While there is no production of oil or gas in this subarea at this time, there are excellent possibilities of future development. The Whitlash oil field, which includes the Bears Den, Berthelote, Flat Coulee and the Whitlash structures, is within a few miles of the boundary of this subarea and has produced 179,454 barrels of oil up to 1950. The February 1952 production of the Whitlash formation was 4,913 barrels, and the Bears Den Formation production was 197 barrels. There was no production from the other formations. Some wildcat drilling is being done around West Butte and Gold Butte. The Texas Company drilled a wildcat well in the northeast corner of Section 18, T. 37 N; R. 3 E, to a depth of 3,810 feet where the well was plugged and abandoned. The metamorphic action has not been so intense near the Sweetgrass Hills as to destroy all the oil once present. This seems to be indicated by the coal of the Piedmont mine on the south flank of West Butte, near one of the localities. This coal has a carbon ratio of about 60 per cent which is slightly lower than what is considered as the prohibitive ratio above which rock can not be expected to yield oil. An oil seep on the north flank of West Butte was visited by W. A. English, of the U. S. Geological Survey, who reported that the oil comes from a sand in the Colorado shales, which, in a well three miles northeast of the seep, is found at 1,640 feet.

The United States Geological Survey, on their map of mineral deposits of Montana, show that there are two mineralized areas in this subarea, one at Gold Butte showing gold only and one at West Butte showing gold, silver and lead. This report also shows that present production is not known or is insignificant. The only extensive mining development work in the subarea was at the town of Gold Butte. It is stated that over $50,000 worth of placer gold was removed from Twobit Coulee. However, no work has been done there for several years and the town of Gold Butte has become a ghost town. There does not appear to be an official record of the gold produced.

Many mining claims have been located and patented in Section 18, T. 36 N, R. 3 E; Sections 24, 25, and 36, T. 36 N, R. 4 E; Sections 19, 20, 29, 31, and 32, T. 36 N, R. 5 E. These claims were located both as lode and placer claims. There is coal underlying all of this subarea except the porphyry localities and the area immediately surrounding them. Some coal has been mined at the Peidmont mine, on the south flank of West Butte. The coal in this area is locally of high volatile B-bituminous rank. This is probably due to the alterations of the beds by igneous intrusions in this area. No beds of minable thickness have been mapped here.

Economics and Rural Sociology

There is a definite contrast in the methods of land utilization in this subarea and that of the adjacent Great Plains area where the common practice is to summer fallow one-half of the farm acreage each year and leave the remaining half idle to store up ground moisture for the next year when it will in turn be seeded. In the Sweetgrass foothill area, the total tillable acreage is farmed each year, largely under a rotation with forage and grain crops. Stubble mulch dry farming is the general practice on the Great Plains area, while in this subarea the stubble is generally turned under with moldboard plows.

Chester, on the main line of the Great Northern Railway and U. S. Highway No. 2, is approximately 30 miles south of the Sweetgrass Hills. The towns of Sweetgrass and Sunburst, with populations of 356 and 709, on the Shelby-Great Falls branch of the Great Northern Railway, are 15 to 20 miles west of the subarea. Sweetgrass is on the International boundary. The Great Northern Railway connects with the Canadian Pacific Railroad there. Most of the ranches of this area have the benefits of rural electrification and telephone service. Grade school facilities are available at Chester, Sunburst and Sweetgrass. High schools operate at Chester and Sunburst. The Northern Montana College of Education is located at Havre, 85 miles southeast of the subarea.

Public Domain Land Classification

The top of the buttes consist of barren ridges, rocky ledges, talus covered slopes and rough forested areas. The forested areas have a cover of small scrubby Douglas fir and lodgepole pine and in the lower part of this type, the trees seem more scattered and there is an understory of browse, weeds and tall grass. Below this is the grass type with bluestem and spiked wheatgrass, bluegrass, and needleandthread. Threadleaf sedge, weeds and some blue grama are also present. The public domain lands within the subarea have been divided into three units. Public domain lands are concentrated in the vicinity of East Butte and West Butte. The balance of the public lands are isolated tracts scattered over the subarea.

The following tabulation shows the vegetative cover, the capability class, and the carrying capacity of the public domain lands of the Sweetgrass Hills subarea:

		Capability Class, Acres				Vegetative Type, Acres				
	Total	V	VI	VII	VIII	1	6	7	8	AUMS
Scattered Tracts	5,247	80	2,612	2,375	180	4,847	290	110		1,290
West Butte	2,263		50	1,478	735	723	736	565	219	261
East Butte	3,951		165	2,235	1,551	877	1,470	970	634	501
Totals	11,461	80	2,827	6,088	2,466	6,447	2,516	1,645	853	2,052
Per Cent	100	T	25	53	22	56.3	22.0	14.3	7.4	

The capability classes V to VIII are explained in table 9. The numbers refer to vegetative types; 1, grass; 6, conifer; 7, waste, and 8, barren. The recommended stocking rate is presented as animal unit months. The relative quality of the lands of the three units is clearly shown in the above tabulation. Only four acres are required per animal unit month in the scattered tracts. The requirement is nine acres in the West Butte area and eight acres in the East Butte area. Erosion is slight in this subarea. There is little grazing use, except by game, in the mountainous tracts and on the talus covered slopes. The timbered areas are used only by the few deer found here and at the lower timber lines sheep and cattle sometimes shade up during the hot summer days. The public domain lands are all in good to excellent condition for each specific site class. A synopsis of the description and classification of each tract in the subarea is presented in table 6.

Recommendations

The subarea contains 61 small isolated tracts of public domain ranging in size from 38.60 to 400.00 acres and totalling 5,247 acres. The location of these tracts is shown on the map with this report. The tracts are scattered through the subarea and comprise less than four per cent of the gross area. These tracts have an average carrying capacity of four acres per animal unit month. Vegetative cover is grass on 4,847 acres. There are 5,067 acres in capability classes 5, 6, and 7 as shown in the preceding tabulation. These lands have been used only for grazing which is their principle suitability. There is no permanent surface water, timber, evidence of minerals, improvements or farm lands of any of the tracts. There is no apparent need for these lands in any Federal land management program and their disposal would be in the best public interest. In case the State of Montana does not select these tracts in the Glacier Park-State Exchange, at present under consideration, it is recommended that these scattered tracts be offered for disposition by sale or exchange.

The East Butte unit is the largest block of unreserved public domain in the subarea with an acreage of 3,951 acres, classified as shown in the preceding tabulation. The vegetative cover of this tract is classified as 887 acres grass; 1,480 acres of timber type supporting browse and grass; 97 acres as waste dense timber and brush of slight value for grazing but not barren; 634 acres as barren rock ridges, outcroppings and talus covered slopes. These lands lie along the summit of the East buttes of the Sweetgrass Hills. These hills are steep and rough and have many barren rock ridges and talus covered slopes. There are numerous thick stands of post and pole size Douglas fir and lodgepole pine, most of which are very inaccessible. Some potential mining claims are located at the head of the west drainage but there is no evidence of any development in the area or of production from it. This tract has a carrying capacity of 501 animal unit months or an average of eight acres per animal unit month. This land is suitable only for game range and for watershed protection. There are a few small trout in the mountain streams as they emerge from the canyons. Some blacktail deer range over the area yearlong, but they have to depend on the private lands in the foothills for winter feed. It is recommended that the East Butte unit be retained in Federal ownership because of its value for game range.

The West Butte unit contains 2,263 acres of unreserved and unappropriated public domain lands and is the second largest block of public domain in the subarea. The land use capability of this tract is presented in the preceding tabulation. The carrying capacity of the unit is 261 animal unit months or an average of 8.7 acres per animal unit month. There are 723 acres in grass type; 756 acres are timber type, supporting browse and grass; 565 acres are waste type with dense timber and brush of slight value for grazing livestock; 219 acres are barren rock ridges and talus covered slopes. These lands are most suitable for game range and watershed protection. It is recommended that these rough lands be retained in Federal ownership.

Table 6.- Summarized Description and Classification of Public Domain Lands by Counties Within the Sweetgrass Hills Subarea of the Marias River Area, Montana, 1952 1/

Montana Principal Meridian									
Twp. North	Range East	Sec.	Subdivision	Acres	General Land Character	Present Land Use	Land Capability Classification 2/	Principal Suitability	Proposed Management
Liberty County									
36	4	1	SE¼SW¼	40.00	Rough mountainous	Grazing	VI	Grazing	Private
		2	SW¼NW¼	40.00	Rough mountainous	Grazing	VI	Grazing	Private
		12	NE¼NW¼, SE¼SE¼	80.00	Rough mountainous	Grazing	VI	Grazing	Private
		13	NE¼NE¼, S½NE¼, SE¼	280.00	Rolling mountainous	Grazing	30/VI:140/VII: 110/VIII	Grazing	Private
		14	NW¼NE¼, S½SE¼, SE¼SW¼	160.00	Rough mountainous	Grazing	40/VI/120/VII	Grazing	Private
		24	NW¼NW¼, N½NE¼, SW¼NE¼, Lots 1,2,3,4	302.65	Rough mountainous	Grazing	160/VII: 142.65/VIII	Grazing	Private
		25	Lots 1,2,4,5,6, E½NE¼	207.05	Rough mountainous	Grazing	80/VII:127.05/VIII	Grazing	Private
		30	SE¼NW¼, NW¼SE¼	80.00	Rough hummocky	Grazing	VII	Grazing	Private
		33	SW¼NE¼, NW¼SE¼	80.00	Gently rolling	Grazing	60/VII:20/VIII	Grazing	Private
		34	NW¼NW¼	40.00	Gently rolling	Grazing	VII	Grazing	Private
		36	Lots 1,2,3,5	125.55	Rough mountainous	Grazing	55/VI:42/VII: 28.55/VIII	Grazing	Private
36	5	5	NE¼SW¼	40.00	Rolling mountainous	Grazing	VII	Grazing	Private
		8	SE¼SW¼, S½SE¼	120.00	Rolling mountainous	Grazing	VII	Grazing	Private
		9	SW¼SW¼	40.00	Rolling mountainous	Grazing	VII	Grazing	Private
		13	SW¼NE¼, SE¼NW¼, NE¼SE¼	120.00	Steeply rolling	Grazing	VII	Grazing	Private
		14	N½SW¼, SW¼SE¼	120.00	Steeply rolling	Grazing	VII	Grazing	Private
		17	E½, E½W½	480.00	Rolling steep mountainous	Grazing	VII	Grazing	Private
		18	Lots 1,2,3,4, E½W½, S½NE¼, SE¼	546.00	Rolling steep mountainous	Grazing	170/VII:376/VIII	Grazing	Private
		19	Lots 1,2,3,4,5,6,7,8, NE¼NW¼, N½NE¼,SE¼SW¼	379.15	Rolling steep mountainous	Grazing	190/VII: 189.15/VIII	Grazing	Private
		20	Lots 1,3,4,5, NE¼NW¼, W½NE¼,SE¼NE¼, NW¼SE¼	260.66	Rolling steep mountainous	Grazing	VII	Grazing	Private
		21	SW¼NW¼, NW¼SE¼	80.00	Rolling steep mountainous	Grazing	VII	Grazing	Private
		22	NE¼, E½NW¼	240.00	Steep high butte	Grazing	150/VII:90/VIII	Grazing	Private
		23	W½NW¼, NW¼SW¼,NE¼NE¼	160.00	Steep high butte	Grazing	90/VII:70/VIII	Grazing	Private
		24	NE¼SE¼	40.00	Steeply rolling	Grazing	VII	Grazing	Private
		27	SE¼SE¼	40.00	Steeply rolling	Grazing	VII	Grazing	Private

-Continued

Table 6.- Summarized Description and Classification of Public Domain Lands by Counties Within the Sweetgrass Hills Subarea of the Marias River Area, Montana, 1952 1/ -Continued

Montana Principal Meridian			Subdivision	Acres	General Land Character	Present Land Use	Land Capability Classification 2/	Principal Suitability	Proposed Management
Twp. North	Range East	Sec.							
Liberty County									
36	5	29	Lots 1,2,3,4,5,8,9, W½SW¼, NE¼SW¼, SW¼NW¼	372.02	Rough rolling mountainous	Grazing	189.50/VIII, 182.52/VII	Grazing	Private
		30	Lots 1,2,3,4,, E½W½, S½NE¼, SE¼	544.80	Rough rolling mountainous	Grazing	275/VII, 269.80/VIII	Grazing	Private
		31	Lots 1,2, N½NE¼,SE¼NE¼, NE¼NW¼	212.15	Rough rolling mountainous	Grazing	135/VII: 77.15/VIII	Grazing	Private
		32	Lot 3	40.83	Rough rolling mountainous	Grazing	VIII	Grazing	Private
		32	NE¼	160.00	Steeply rolling	Grazing	VII	Grazing	Private
		33	W½NW¼, NW¼SW¼	120.00	Steeply rolling	Grazing	VII	Grazing	Private
Toole County									
36	2	2	Lot 1, 4, SW¼NE¼	117.89	Gently to steeply rolling	Grazing	VI	Grazing	Private
		4	Lot 4	38.60	Gently to steeply rolling	Grazing	VI	Grazing	Private
		10	NW¼NW¼, NE¼NE¼,NE¼SW¼	120.00	Gently to steeply rolling	Grazing	VI	Grazing	Private
		15	NW¼NE¼, SE¼NE¼, SW¼SW¼	120.00	Gently to steeply rolling	Grazing	VI	Grazing	Private
		17	N½N½, NE¼SW¼	200.00	Gently to steeply rolling	Grazing	VI	Grazing	Private
		18	E½SE¼	80.00	Gently to steeply rolling	Grazing	VI	Grazing	Private
		19	SE¼SW¼, SW¼SE¼	80.00	Gently to steeply rolling	Grazing	VI	Grazing	Private
		20	NW¼NW¼	40.00	Gently to steeply rolling	Grazing	VI	Grazing	Private
		24	SW¼NE¼	40.00	Gently to steeply rolling	Grazing	VI	Grazing	Private
36	3	1	NW¼SW¼	40.00	Gently to steeply rolling	Grazing	VI	Grazing	Private
		5	NE¼SE¼	40.00	Gently to steeply rolling	Grazing	VI	Grazing	Private
		8	NE¼SE¼	40.00	Gently to steeply rolling	Grazing	VII	Grazing	Private
		9	NE¼SW¼	40.00	Gently to steeply rolling	Grazing	VII	Grazing	Private
		11	NW¼SE¼	40.00	Gently to steeply rolling	Grazing	VI	Grazing	Private
		13	SE¼NW¼	40.00	Gently to steeply rolling	Grazing	VI	Grazing	Private
		14	W½NW¼	80.00	Gently to steeply rolling	Grazing	VI	Grazing	Private

-Continued

Table 6.- Summarized Description and Classification of Public Domain Lands by Counties Within the Sweetgrass Hills Subarea of the Marias River Area, Montana, 1952 1/ -Continued

Montana Principal Meridian			Subdivision	Acres	General Land Character	Present Land Use	Land Capability Classification 2/	Principal Suitability	Proposed Management
Twp. North	Range East	Sec.							
Toole County									
36	3	18	NW¼NE¼, Lots 5,6,11,12	95.68	Gently to steeply rolling	Grazing	VI	Grazing	Private
		20	SE¼NW¼	40.00	Gently to steeply rolling	Grazing	VI	Grazing	Private
		21	NE¼SE¼	40.00	Gently to steeply rolling	Grazing	VI	Grazing	Private
		22	NE¼NE¼	40.00	Gently to steeply rolling	Grazing	VI	Grazing	Private
		28	S½SE¼, SE¼SW¼	120.00	Gently to steeply rolling	Grazing	40/VI:80/VII	Grazing	Private
		29	S½NW¼, SW¼NE¼, SW¼, W½SE¼, NE¼SE¼	400.00	Steep rolling mountainous	Grazing	290/VI: 110/VII	Grazing	Private
		30	SW¼SW¼	40.00	Steeply rolling	Grazing	VII	Grazing	Private
		31	Lots 2,3,NE¼NE¼	105.90	Steeply rolling	Grazing	VII	Grazing	Private
		32	N½NW¼, NW¼NE¼	120.00	Steeply rolling	Grazing	VII	Grazing	Private
37	1	13	Lots 1,2, SW¼SE¼,SE¼SW¼	151.95	Rough mountainous	Grazing	VII	Grazing	Private
		14	Lots 1,2,3,N½NE¼,NE¼SW¼, S½SW¼	249.28	Rough mountainous	Grazing	30/VI:219.28/VII	Grazing	Private
		15	SE¼SE¼	40.00	Steeply rolling	Grazing	VII	Grazing	Private
		21	SW¼NE¼	40.00	Steeply rolling	Grazing	20/VI:20/VII	Grazing	Private
		22	NE¼NW¼, NW¼SE¼	80.00	Steeply rolling	Grazing	VII	Grazing	Private
		24	Lots 1,2,3,4,W½E½, NE¼NW¼, E½SW¼, SW¼SW¼	475.36	Steep mountainous	Grazing	306.36/VII: 169/VIII	Grazing	Private
		25	Lots 1,2,3,4, W½E½, E½W½, SW¼NW¼	553.73	Steep mountainous	Grazing	488.73/VII: 65/VIII	Grazing	Private
		26	SE¼NE¼	40.00	Steep mountainous	Grazing	VII	Grazing	Private
		35	NW¼NW¼	40.00	Steep mountainous	Grazing	V	Grazing	Private
37	2	2	SE¼SW¼	40.00	Gently rolling	Grazing	V	Grazing	Private
		8	NW¼SE¼	40.00	Gently rolling	Grazing	VI	Grazing	Private
		9	NE¼NE¼	40.00	Gently rolling	Grazing	VI	Grazing	Private
		10	W½NW¼	80.00	Gently rolling	Grazing	VI	Grazing	Private
		14	NE¼NE¼	40.00	Gently rolling	Grazing	VI	Grazing	Private
		15	NW¼NE¼	40.00	Gently rolling	Grazing	VI	Grazing	Private
		20	NE¼NW¼, NW¼NE¼	80.00	Steeply rolling	Grazing	VII	Grazing	Private

-Continued

Table 6.- Summarized Description and Classification of Public Domain Lands by Counties Within the Sweetgrass Hills Subarea of the Marias River Area, Montana, 1952 1/ -Continued

Montana Principal Meridian			Subdivision	Acres	General Land Character	Present Land Use	Land Capability Classification 2/	Principal Suitability	Proposed Management
Twp. North	Range East	Sec.							
Toole County									
37	2	21	NE¼SE¼	40.00	Gently rolling	Grazing	VI	Grazing	Private
		22	NW¼NW¼,NE¼SW¼	80.00	Gently rolling	Grazing	VI	Grazing	Private
		23	W½SE¼	80.00	Gently rolling	Grazing	VI	Grazing	Private
		25	W½NW¼, SE¼SW¼	120.00	Gently rolling	Grazing	100/VI:20/VII	Grazing	Private
		26	NE¼NW¼	40.00	Gently rolling	Grazing	VI	Grazing	Private
		27	S½NE¼	80.00	Gently rolling	Grazing	VI	Grazing	Private
		19	Lot 4 (40.03)						
		30	Lots 1,2,3,4,SE¼NW¼, S½NE¼, E½SW¼,SE¼	560.91	Rough mountainous, rolling	Grazing	380.91/VII: 180/VIII	Grazing	Private
		31	Lots 1,2,3,E½NW¼, NE¼, N½SE¼, NE¼SW¼	480.75	Rough mountainous, rolling	Grazing	50/VI:110/VII: 320.75/VIII	Grazing	Private
		35	N½NW¼, N½SW¼, SW¼SW¼, SE¼SE¼	240.00	Steeply rolling	Grazing	160/VI:80/VII	Grazing	Private

Totals by Counties	Total Acres	Acres by Land Capability Classes			
		V	VI	VII	VIII
Liberty	5,550.86		285.00	3,535.18	1,730.68
Toole	5,910.05	80.00	2,542.17	2,553.13	734.75
Grand Total	11,460.91	80.00	2,827.17	6,088.31	2,465.43

1/ This table has been compiled from the individual tract classification reports of the Bureau of Land Management, Region III, Billings, Montana.

2/ See table 9 for detailed description of land-use capability classification.

WILD HORSE LAKE SUBAREA

Description

Wild Horse Lake subarea is in the north central Hill County, along the Canadian border. There are 14,637 acres of public domain in this subarea; 11,675 acres of which is in the Wild Horse Lake depression and is considered in the following text. The remaining 2,962 acres are in scattered isolated tracts near the lake, which are classified as being suitable for disposal as there is no need for these lands to remain in public ownership.

Wild Horse Lake is an ancient stream depression that had its natural outlet dammed with glacial drift. The only known water loss is through evaporation and a small amount of seepage. Loss due to evaporation averages close to thirty inches per annum and may be three feet in hot, dry years. Seepage is considered to be about two feet in Hill County, but with heavy, impervious clay horizons, such as occur in this lake bed, seepage loss is considerably less. There are no outlets to this lake. The lake bed slopes to the center at the rate of about two feet per mile. The lake bed will tend to fill very slowly, gathering some sediment from a gently rolling, well-grassed watershed. During the past a certain amount of clay-silt material was spread on the flats from inlet streams. All such sources originate in Canada and their waters have been impounded.

The water supply is entirely dependent upon the yearly fluctuation of precipitation falling on the lake bed proper and upon the adjacent watershed. Principal inlets occur in Canada and enter by the upper end of the lake, although there is no drainage as the stream water has been diverted for irrigation north of the border. The lake bed was completely flooded in 1916 and 1952. Between 25 and 50 acre-feet per square mile per annum has been found to be the average runoff in the Montana plain areas, but runoff will show a 400 per cent variation in two consecutive years on the same watershed. The water supply for Wild Horse Lake is not only limited but extremely uncertain.

On the outer periphery of the lake, ranchers are utilizing shallow dug wells that tap a water table around 20 feet below the ground surface. Such water is evidently seepage from Wild Horse Lake. This water is different from the immediate surrounding wells that average 30 or more feet in depth as it does not evince noticeable tastes and odors. The lake seepage waters seem to be plentiful, potable and without color or turbidity.

The soil type found on the bottom of Wild Horse Lake is classified as Laurel clay loam and identified as a noncalcareous, checked, cloddy, grayish-brown clay. These heavy Laurel clay loams cover approximately 33 square miles in Hill County, of which only a few square miles are outside of the Wild Horse Lake area. The physical soil factors are such that when the ground is not inundated the heavy clay hardens or "bakes" into pottery-like clods which are resistant to wind erosion. In late springs and after flash floods a very small amount of silt that was deposited during the subsequent evaporation and seepage may be carried by the wind, but most of the particles are caught and held by the crevices and the late summer vegetation of bluestem wheatgrass, dock, reeds, and sedge.

Clay is one of the better soil types in regard to its water holding capacity, due to its large amount of pore space. This clay soil swells when wet, preventing good seepage or aeration, and also shrinks on drying. During the period of water ebb, the exposed clay of Wild Horse Lake hardens and cracks. From observations, made during the spring of 1946, it would appear that if the depressions in the lake bed are not filled with water during the preceding fall or winter, the cracks normally produced are not more than several inches in width or more than a foot in depth. The reason is that perhaps the larger clods break down into small clumps during the winter months and form a type of inorganic mulch. When the water recedes during the summer, especially when rainfall is followed by extremely dry weather, the lake has formed cracks up to eight inches in width that have penetrated to the depth of six or seven feet.

The soils of Wild Horse Lake are retractive for cultivation. Both the factors of root-zone depth and the high percentage of salinity are detrimental to normal plant growth. For the production of staple farm crops, it is considered essential that the depth from the surface to the saturated zone or root-zone depth be at least four feet. In the heavy clay forming the Wild Horse Lake bed, soil aeration ceases with the advent of moisture as the great hydrous capacity of Laurel clays replaces the air in the soil pore space. This compaction of clay with the resulting lack of aeration eliminates a suitable root-zone depth and would also prevent standard irrigation practices for staple crop production.

Soil profile studies have been made showing that the salinity concentration reaches .44 per cent at the one to two foot level. A .50 per cent soluble salt concentration is considred lethal for staple crops. A test hole was sunk near the center of the lake bed in Section 21, T. 37 N, R. 13 E, in 1946. Tests were made at various depths with an electrical resistance apparatus. Readings made indicated alkalinity and salinity as shown in the following tabulation:

Depth in Inches	PH	Temperature Degree Fahr.	Resistance Reading	Soluble Salts Percentage
0 - 5	8.4	67	120	.26
5 - 12	8.4	68	110	.31
12 - 24	8.4	70	80	.44
24 - 36	8.4	65	45	.86
36 - 48	8.6	66	45	.88
48 - 58	8.6	66	50	.79

The above data was based on one sample taken from a representative area. It should not be considered as conclusive for the whole tract, but should serve as an index. Sampling by auger showed identical profiles as far as physical structure could be determined by observation, so the one sampling for testing was believed to be adequate.

Shallow-rooted grasses can have a satisfactory growth where the saturation zone is as close as two feet from the surface. If brief rains occur at frequent intervals, but with not enough waterfall to keep the top two feet saturated over a long period of time, alkaline, saline tolerant plants such as foxtail barley and bluestem wheatgrass would produce grazing forage and even good hay yields. Such a condition occurred in this region during the year of 1927. Normally, shallow-rooted, alkali tolerant grasses have a brief period of growth in the spring, then dormancy sets in as the lake bed starts its characteristically rapid drying and cracking. Again in the fall there may be a brief growing phase supported by moisture furnished by fall rains.

Area Economics and Rural Sociology

The rural sociology and economics of the surrounding country are typical of the region. Dry farming predominates, with ranching being carried on in the rougher areas. Cattle and sheep are the most important of the livestock with some horses being raised on land that is adjacent to Wild Horse Lake. An occasional farmer has milk cows and chickens, and supplies his neighbors with excess produce, but very few such diversified farms are in operation. The dry farmers produce spring wheat. Most farmers "shack out" on their farms during the summer and go back to town for the winter. Supplies, equipment, and the market for their crops and livestock are in Havre, Montana. The distance is between 35 and 50 miles. The main road is a good gravel highway, with poor secondary roads leading from 20 to 10 miles before reaching public domain in the lake bed proper.

Winter is very severe in this country. Roads are frequently blocked with snow. Ranchers are often isolated for as long as six weeks at a time. Children attend school in the summer because of the rigorous winters. The number of children attending country schools is less than would be expected as the Canadian border cuts down the number of children per commuting distance. Schools for Canadians just north of the border are nonexistent, and there has been some attempt to have the authorities allow them the use of the Montana schools. Such attempts, so far, have been unsuccessful.

Public Domain Land Classification

The heavy clay lands of the lake bed cover 11,675 acres of public domain. These lands are alkali-saline, subject to inundation, excessive drying and cracking. Nearly all of the lake bed is virtually barren. Grass grows only on the edges in most years. The subarea has been divided into two units; the lake bed proper and the scattered tracts of public domain land outside of the lake bed. The public domain lands within the subarea are classified as follows:

Unit	Land Use Capability Class, Acres				Total Area, Acres
	V	VI	VII	VIII	
Lake Bed Retention Area	320	236	90	11,029	11,675
Scattered Tracts Disposal Area	370	2,317	275		2,962
TOTAL	690	2,553	365	11,029	14,637

This table has been compiled from the individual classification reports for each tract. These reports are on file at the Region III office of the Burea of Land Management. In the lake bed retention unit 11,029 acres are virtually barren with only occasional grass or annual weeds. A grass type covers 645 acres. Total carrying capacity of the unit is only 210 animal unit months. The 2,962 acres in the scattered tracts is covered with a grass type of vegetation in good condition providing 677 animal unit months of forage. The land use capability classes are explained in table 9. Land condition classes are defined in table 10. A summary of the description and classification of each tract of public domain in the subarea is presented in table 7.

Recommendations

If water could be made available, either through the natural inlets from Canada or from the Milk River, hydrophytic plants (wild rice, for example) could be grown in Wild Horse Lake. Such crops could be harvested as cash crops, or used for a migratory wildlife feed. If there is insufficient water for marsh plants, perhaps enough water could be had for shallow-rooted, alkaline, saline-tolerating grasses. These developments would be possible because the heavy clay soil is virtually impervious. When flooded, the impermeability of the clay would hold the soluble salts found in the lower horizons in place. The water would reduce the saline concentration so that plants could grow.

A game refuge would be a suitable development if sufficient water could be made available. Frequently hundreds of ducks and some geese use the small, shallow, turbid, water-filled depressions which are filled with spring rains and runoff. As these pot holes dry, the waterfowl seek other waters. During the winter and into early spring, many antelope range the country side, frequently being seen on Wild Horse Lake bed. They come south out of Canada during severe weather and go north in the spring. When the season is open good hunting is found in this area. The feasibility of this development is being considered by the Fish and Wildlife Service and the Montana Fish and Game Commission.

In event that sufficient water is not available to convert this natural depression into a storage lake, migratory bird refuge, and game range, an effort should be made to drain the area and convert it into dependable forage lands. The high water line is on the 2,800 foot contour line, and the Bench Mark located at the northeast corner of Section 13, T. 37 N, R. 13 E, shows an elevation of 2,798 feet and the one at the northeast corner of Section 35, same township and range, shows an elevation of 2,793 feet or a drop of five feet in three miles. A drainage ditch should be constructed from Section 13, T. 37 N, R. 12 E, for about five-eighths of a mile to empty into a small coulee leading into Spring Coulee. A headgate should be installed at the lake outlet in order that the subarea might be flood-irrigated and drained in the spring. The area should be cultivated and seeded to grasses and other forage plants that are found to be adaptable to this area and to the soil conditions which prevail. It is believed that little difficulty will be found in establishing an excellent forage cover. It would, however, be necessary to construct a number of drainage ditches leading to the outlet canal to drain off the water and salts after the filled period. Local ranchers who have had experience with similar, but smaller glacial lakes, state that these lands make excellent wheat production areas.

If left "as is", this tract of barren land will remain a wasteland with only its edges cropped by trespassing horses. Difficulties between ranchers and the wheat farmers have been serious and frequent, due to horses breaking in on cultivated lands and escaping back to public domain on the lake bed. One year certain disgruntled farmers took it upon themselves to shoot treaspassing horses. In the dusk, a cow, mistaken for a horse, was shot. In retaliation the owners of the tresspassing stock attempted to have the sheriff apprehend the ranchers. An undesirable situation arose with the farmers surreptitiously hunting horses, and the ranchers attempting to catch them in the act, leading to an undesirable neighborhood relationship.

It is recommended that the lake bed unit be retained in Federal ownership pending decisions as to its ultimate use and disposition in accord with the development proposals under consideration. All of the scattered tracts unit is suitable for disposition. In case the State of Montana does not select these tracts under the proposed Glacier Park-State Exchange, now under consideration, it is recommended that these tracts be made available for exchange or sale to private owners.

Table 7.- Summarized Description and Classification of Public Domain Lands in Hill County, Within the Wild Horse Lake Subarea of the Marias River Area, Montana, 1952 1/

Montana Principal Meridian									
Twp. North	Range East	Sec.	Subdivision	Acres	General Land Character	Present Land Use	Land Capability Classification 2/	Principal Suitability	Proposed Management
36	14	7	Lots 3,4, E½SW¼, SE¼	307.88	Gently rolling to undulating	Grazing	VI	Grazing	Private
		8	S½	320.00	Gently rolling to undulating	Grazing	VI	Grazing	Private
		17	E½E½	160.00	Gently rolling to undulating	Grazing	VII	Grazing	Private
		20	NE¼NE¼	40.00	Gently rolling to undulating	Grazing	15/VI:25/VII	Grazing	Private
		21	N½N½	160.00	Gently rolling to undulating	Grazing	70/VI:90/VII	Grazing	Private
		23	W½NW¼, E½NE¼, S½	480.00	Gently rolling to undulating	Grazing	VI	Grazing	Private
		24	N½NW¼, S½N½, S½	560.00	Gently rolling to undulating	Grazing	VI	Grazing	Private
37	12	2	S½SW¼	80.00	Mostly under water		VIII	Water Storage	Federal
		3	S½SE¼	80.00	Mostly under water		20/VI:80/VIII	Water Storage	Federal
		8	W½SE¼	80.00	Gently sloping	Grazing	V	Grazing	Private
		9	SE¼SW¼, S½SE¼	120.00	Partly under water		VIII	Grazing	Federal
		10	S½SW¼, SE¼, E½NE¼	320.00	Mostly under water		VIII		Federal
		11	NW¼, S½	480.00	Mostly under water		VIII		Federal
		12	NW¼NW¼, NE¼NE¼, S½N½, S½	560.00	Mostly under water		VIII		Federal
		13	All	640.00	Mostly under water		VIII		Federal
		14	N½, SE¼	480.00	Partly under water	Grazing	90/VI:390/VIII	Grazing	Federal
		15	NE¼NE¼	40.00	Gently sloping	Grazing	VI	Grazing	Federal
		20	E½SE¼, SE¼NE¼	120.00	Gently sloping	Grazing	VI	Grazing	Private
		27	NE¼SW¼	40.00	Gently sloping	Grazing	VI	Grazing	Private
37	13	6	Lots 3,4,5,6,7,SE¼SW¼, E½SW¼, SE¼, SW¼NE¼	481.14	Partly under water	Grazing	85/VI:90/VII: 306.14/VIII	Water, Grazing	Federal
		7	All	637.40	Mostly under water		VIII	Under Water	Federal
		8	S½	320.00	Mostly under water		VIII	Under water	Federal
		9	S½S½	160.00	Mostly under water		VIII	Under water	Federal
		13	SW¼	160.00	Mostly under water		VIII	Under water	Federal
		14	NW¼, S½	480.00	Mostly under water		VIII	Under water	Federal
		15	All	640.00	Mostly under water		VIII	Under water	Federal
		17	All	640.00	Mostly under water		VIII	Under water	Federal

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Table 7.- Summarized Description and Classification of Public Domain Lands in Hill County, Within the Wild Horse Lake Subarea of the Marias River Area, Montana, 1952 1/ –Continued

Montana Principal Meridian									
Twp. North	Range East	Sec.	Subdivision	Acres	General Land Character	Present Land Use	Land Capability Classification 2/	Principal Suitability	Proposed Management
37	13	18	All	636.88	Mostly under water		VIII	Under water	Federal
		19	$N\frac{1}{2}$	318.91	Mostly under water		VIII	Under water	Federal
		20	All	640.00	Mostly under water		VIII	Under water	Federal
		21	All	640.00	Mostly under water		VIII	Under water	Federal
		22	All	640.00	Mostly under water		VIII	Under water	Federal
		23	All	640.00	Mostly under water		VIII	Under water	Federal
		24	$W\frac{1}{2}NE\frac{1}{4}$, $NW\frac{1}{4}$, $S\frac{1}{2}$	560.00	Mostly under water		VIII	Under water	Federal
		25	$N\frac{1}{2}$, $SE\frac{1}{4}$	480.00	Mostly under water		VIII	Under water	Federal
		26	$N\frac{1}{2}$, $SW\frac{1}{4}$	480.00	Gently to steeply rolling, water	Grazing	65/VI:415/VIII	Grazing & Under water	Federal
		35	$E\frac{1}{2}$	320.00	Gently rolling to level	Grazing	V	Grazing	Federal
37	14	1	$E\frac{1}{2}SE\frac{1}{4}$	80.00	Undulating to gently rolling	Grazing	VI	Grazing	Private
		6	Lots 8,9,10,11,7, $SE\frac{1}{4}SW\frac{1}{4}$, $SW\frac{1}{4}SE\frac{1}{4}$	214.43	Undulating to gently rolling	Grazing	VI	Grazing	Private
		11	$W\frac{1}{2}$	320.00	Undulating to gently rolling	Grazing	290/V:30/VI	Grazing	Private
		32	$E\frac{1}{2}NW\frac{1}{4}$	80.00	Undulating to gently rolling	Grazing	VI	Grazing	Private

Total by County	Total Acres	Acres by Land Capability Classes			
		V	VI	VII	VIII
Hill (Grand Total)	14,636.64	690.00	2,617.31	365.00	10,964.33

1/ This table has been compiled from the individual tract classification reports of the Bureau of Land Management, Region III, Billings, Montana.

2/ See table 9 for detailed description of land-use capability classification.

DISPOSAL SUBAREA

Description

In addition to the seven subareas of concentrated public domain described in the preceding pages, tracts of public domain are scattered over the entire Marias River area, as shown on the map of the area with this report. These tracts are grouped for consideration as the Disposal subarea. The economic, climatic and social conditions are best described as those of the general area or of the subarea in the vicinity of a particular tract. These features have been described in this report.

The Marias River Disposal subarea contains 38,678 acres scattered over Glacier, Teton, Pondera, Toole, Liberty, Hill and Chouteau Counties, in 547 separate and isolated tracts. The largest of these tracts is 560 acres and the smallest .96 of an acre, with an average of 70.71 acres per tract. All of these lands are in good to fair condition and are primarily suitable only for grazing with an average of 3.91 acres per animal unit. If the non-grazing land is excluded, only 3 acres of land are required to provide an animal unit month of forage.

Public Domain Land Classification

The scattered tracts of public domain lands in the Marias River Disposal subarea are classified as follows by counties:

County	Land Capability Classes, Acres				Total Acres	Grazing Capacity AUMS
	V	VI	VII	VIII		
Chouteau	185	2,154	3,046	50	5,435	1,253
Glacier	32	885	37		954	317
Hill	2,182	5,406	3,005	301	10,894	2,869
Liberty	34	4,914	1,976	50	6,974	1,799
Pondera	38	1,641	326	135	2,140	520
Teton		120	453		573	109
Toole	226	7,454	2,862	1,166	11,708	3,026
TOTAL	2,697	22,574	11,705	1,702	38,678	9,893

The description and summarized classification of each tract is shown in table 8. Land use capability classes are described in table 9. All public domain lands in the subarea were in good to very good condition at the time of the examination. Land condition classes are defined in table 10. Each tract of public domain has been examined and classified.

The topography is mainly rolling to steeply rolling with some rough broken badlands along the Marias River. The vegetative cover is mainly of the short and midgrass type and the dominant species are blue grama, bluestem wheatgrass, Poa, prairie junegrass, Stipa and threadleaf sedge. There is no timber, evidence of minerals, or farm lands or improvements on any of the tracts. There are no springs or running water on any of the tracts. There are a few small tracts that lie along the Marias River in Toole and Liberty counties, and along the Milk River in Hill County. There is no apparent need for these widely scattered tracts to remain in Federal ownership and their disposal to private owners will be in the best public interest. If the State of Montana does not select these tracts as proposed in the present Glacier Park-State Exchange, it is recommended that these lands be made available for exchange or sale to private owners.

Table 8.- Summarized Description and Classification of Public Domain Lands by Counties Within the Disposal Subarea of the Marias River Area, Montana, 1952 1/

Montana Principal Meridian									
Twp. North	Range East	Sec.	Subdivision	Acres	General Land Character	Present Land Use	Land Capability Classification 2/	Principal Suitability	Proposed Management
Chouteau County									
25	8	12	NE¼SE¼	40.00	Rough badlands	Grazing	10/VI:20/VII, 10/VIII	Grazing	Private
		24	NE¼	160.00	Rough badlands	Grazing	50/VI:70/VII, 40/VIII	Grazing	Private
25	10	2	Lots 2,6	60.86	Rough badlands	Grazing	VII	Grazing	Private
		4	Lot 4, SW¼NE¼	79.94	Rough badlands	Grazing	55/VI:24.94/VII	Grazing	Private
		5	SE¼NE¼, SW¼NW¼, SW¼SE¼	120.00	Rough badlands	Grazing	60/VI:60/VII	Grazing	Private
		8	Lots 2,3	59.26	Rough badlands	Grazing	30/VI:29.26/VII	Grazing	Private
		9	Lot 3	0.96	Rough badlands	Grazing	VII	Grazing	Private
26	10	12	W½SE¼	80.00	Rough badlands	Grazing	VII	Grazing	Private
		27	SE¼NW¼	40.00	Rough badlands	Grazing	VI	Grazing	Private
	11	1	SE¼NE¼, SE¼NW¼	80.00	Steeply rolling	Grazing	VI	Grazing	Private
		4	SW¼NW¼, NW¼SW¼	80.00	Steeply rolling	Grazing	15/VI:65/VII	Grazing	Private
		5	SE¼NE¼, SW¼NW¼	80.00	Steeply rolling	Grazing	10/VI:70/VII	Grazing	Private
		7	SE¼SE¼	40.00	Steeply rolling	Grazing	VII	Grazing	Private
		8	S½NW¼, SW¼NE¼	120.00	Steeply rolling	Grazing	60/VI:60/VII	Grazing	Private
		9	Lot 3	20.08	Steeply rolling	Grazing	VII	Grazing	Private
		10	Lots 2,3	36.18	Steeply rolling	Grazing	VII	Grazing	Private
		13	Lot 6	5.90	Steeply rolling	Grazing	VII	Grazing	Private
		14	SW¼SE¼	40.00	Steeply rolling	Grazing	30/VI:10/VII	Grazing	Private
		17	NE¼SE¼	40.00	Steeply rolling	Grazing	30/VI:10/VII	Grazing	Private
		18	Lot 1, NE¼NW¼, SW¼NE¼	157.67	Steeply rolling	Grazing	60/VI:97.67/VII	Grazing	Private
		19	SW¼SE¼	40.00	Steeply rolling	Grazing	VII	Grazing	Private
		21	NE¼NW¼	40.00	Steeply rolling	Grazing	VI	Grazing	Private
		22	Lot 4	11.95	Steeply rolling	Grazing	VI	Grazing	Private
		23	NW¼SW¼,SW¼NE¼, SE¼NW¼, NW¼SE¼, NE¼NE¼	200.00	Steeply rolling	Grazing	95/VI:105/VII	Grazing	Private
		28	NW¼SE¼	40.00	Steeply rolling	Grazing	VII	Grazing	Private
		30	Lot 1, NE¼NW¼	78.15	Steeply rolling	Grazing	VII	Grazing	Private

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Table 8.- Summarized Description and Classification of Public Domain Lands by Counties Within the Disposal Subarea of the Marias River Area, Montana, 1952 1/

Montana Principal Meridian									
Twp. North	Range East	Sec.	Subdivision	Acres	General Land Character	Present Land Use	Land Capability Classification 2/	Principal Suitability	Proposed Managemen
Chouteau County									
26	12	1	SE¼SW¼	40.00	Steeply rolling	Grazing	VII	Grazing	Private
		3	Lot 8, SE¼SW¼, SW¼SE¼	95.02	Steeply rolling	Grazing	80/VI:15.02/VII	Grazing	Private
		5	NW¼SE¼	40.00	Steeply rolling	Grazing	VII	Grazing	Private
		6	Lot 7, SW¼NE¼, NW¼SE¼	118.12	Steeply rolling	Grazing	VII	Grazing	Private
		11	NE¼NW¼, Lot 1	44.67	Steeply rolling	Grazing	VII	Grazing	Private
		12	Lot 10	26.25	Steeply rolling	Grazing	VII	Grazing	Private
		13	S½NW¼, N½SW¼	160.00	Steeply rolling	Grazing	VII	Grazing	Private
		14	NW¼SW¼	40.00	Steeply rolling	Grazing	VII	Grazing	Private
		25	NE¼NE¼, S½NE¼, S½S½, NW¼SW¼, W½NW¼	400.00	Steeply rolling	Grazing	140/VI:260/VII	Grazing	Private
		26	SW¼SW¼, NE¼SW¼	80.00	Steeply rolling	Grazing	VI	Grazing	Private
		35	N½NE¼	80.00	Steeply rolling	Grazing	20/VI:60/VII	Grazing	Private
	13	5	SW¼SE¼	40.00	Steeply rolling	Grazing	VI	Grazing	Private
		8	NE¼SW¼	40.00	Steeply rolling	Grazing	VI	Grazing	Private
		17	NE¼SE¼, NE¼NW¼, W½SW¼	160.00	Steeply rolling	Grazing	115/VI:45/VII	Grazing	Private
		18	W½SE¼	80.00	Steeply rolling	Grazing	VII	Grazing	Private
		19	NW¼SE¼	40.00	Steeply rolling	Grazing	VII	Grazing	Private
		28	NW¼NW¼	40.00	Steeply rolling	Grazing	VII	Grazing	Private
		29	NE¼NE¼, SW¼SW¼	80.00	Steeply rolling	Grazing	VII	Grazing	Private
		30	Lot 4	25.65	Steeply rolling	Grazing	VII	Grazing	Private
		31	Lots 2,3,4,8,9	187.04	Steeply rolling	Grazing	VII	Grazing	Private
		32	NW¼NW¼, SE¼NW¼	80.00	Steeply rolling	Grazing	VII	Grazing	Private
27	3	11	SE¼NW¼	40.00	Steeply rolling	Grazing	VI	Grazing	Private
		13	NE¼SW¼	40.00	Steeply rolling	Grazing	V	Grazing	Private
	4	1	SW¼NE¼	40.00	Steeply rolling	Grazing	VII	Grazing	Private
		11	SE¼SW¼	40.00	Steeply rolling	Grazing	VI	Grazing	Private
		32	SW¼SE¼	40.00	Steeply rolling	Grazing	VI	Grazing	Private
	5	7	Lot 4, E½SE¼	127.51	Steeply rolling	Grazing	107.51/VI:20/VII	Grazing	Private
	11	19	Lot 4, SE¼SW¼	76.61	Steeply rolling	Grazing	V	Grazing	Private

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Table 8.- Summarized Description and Classification of Public Domain Lands by Counties Within the Disposal Subarea of the Marias River Area, Montana, 1952 1/ -Continued

Montana Principal Meridian									
Twp. North	Range East	Sec.	Subdivision	Acres	General Land Character	Present Land Use	Land Capability Classification 2/	Principal Suitability	Proposed Management
Chouteau County									
27	11	32	S½SW¼	80.00	Steeply rolling	Grazing	VII	Grazing	Private
	12	24	NE¼NE¼	40.00	Steeply rolling	Grazing	10/VI:30/VII	Grazing	Private
		25	NW¼NW¼, SW¼NE¼	80.00	Steeply rolling	Grazing	VII	Grazing	Private
		26	NW¼SE¼	40.00	Steeply rolling	Grazing	VII	Grazing	Private
		23	SW¼SE¼	40.00	Steeply rolling	Grazing	10/VI:30/VII	Grazing	Private
		35	NW¼, N½SW¼	240.00	Steeply rolling	Grazing	VII	Grazing	Private
	13	3	Lots 1,2	78.64	Gently undulating	Grazing	VI	Grazing	Private
		8	SE¼SE¼	40.00	Gently undulating	Grazing	VI	Grazing	Private
		17	S½SE¼	80.00	Gently undulating	Grazing	VI	Grazing	Private
		18	NW¼SE¼	40.00	Gently undulating	Grazing	VI	Grazing	Private
		30	S½SE¼	80.00	Gently undulating	Grazing	VI	Grazing	Private
	14	7	Lot 3	36.59	Gently rolling	Grazing	VI	Grazing	Private
	15	1	Lot 4	39.74	Mountainous	Grazing	VI	Grazing	Private
		2	Lot 3, SE¼NE¼, N½SW¼	159.98	Mountainous	Grazing	VI	Grazing	Private
		9	NE¼NW¼	40.00	Mountainous	Grazing	VII	Grazing	Private
28	12	4	Lot 4	28.71	Gently sloping	Grazing	V	Grazing	Private
		35	NW¼NW¼	40.00	Gently sloping	Grazing	VI	Grazing	Private
	13	34	SE¼SW¼	40.00	Gently sloping	Grazing	VI	Grazing	Private
29	9	30	SW¼NE¼	40.00	Rough badlands	Grazing	VII	Grazing	Private
	12	25	NW¼NE¼, NE¼NW¼	80.00	Undulating	Grazing	VI	Grazing	Private
	13	7	NE¼NW¼	40.00	Undulating	Grazing	V	Grazing	Private
Glacier County									
North	West								
33	5	31	Lot 5	14.10	Steeply rolling	Grazing	8/VI:6.10/VII	Grazing	Private
		32	Lot 3	30.58	Steeply rolling	Grazing	VII	Grazing	Private
33	6	3	Lot 1	4.05	Steeply rolling	Grazing	VI	Grazing	Private
		14	Lot 3	14.69	Steeply rolling	Grazing	VI	Grazing	Private

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Table 8.- Summarized Description and Classification of Public Domain Lands by Counties Within the Disposal Subarea of the Marias River Area, Montana, 1952 1/ -Continued

Montana Principal Meridian									
Twp. North	Range West	Sec.	Subdivision	Acres	General Land Character	Present Land Use	Land Capability Classification 2/	Principal Suitability	Proposed Management
Glacier County									
34	5	4	NE¼SE¼	40.00	Gently rolling	Grazing	VI	Grazing	Private
		13	SE¼SE¼	40.00	Gently rolling	Grazing	VI	Grazing	Private
	6	22	Lot 2	31.66	Level to gently rolling	Grazing	V	Grazing	Private
35	5	17	SW¼SW¼	40.00	Steeply rolling	Grazing	VI	Grazing	Private
		20	N½NW¼	80.00	Steeply rolling	Grazing	VI	Grazing	Private
		26	SE¼SW¼	40.00	Steeply rolling	Grazing	VI	Grazing	Private
36	5	17	SW¼NE¼	40.00	Steeply rolling	Grazing	VI	Grazing	Private
		22	NW¼NE¼	40.00	Steeply rolling	Grazing	VI	Grazing	Private
		29	NW¼NW¼	40.00	Steeply rolling	Grazing	VI	Grazing	Private
		35	SE¼NE¼	40.00	Steeply rolling	Grazing	VI	Grazing	Private
	6	14	S½NE¼	80.00	Steeply rolling	Grazing	VI	Grazing	Private
		15	Lots 1,2,3,4	72.08	Steeply rolling	Grazing	VI	Grazing	Private
		22	Lot 1	18.57	Steeply rolling	Grazing	VI	Grazing	Private
		27	Lot 4	20.91	Steeply rolling	Grazing	VI	Grazing	Private
		34	Lot 1	21.17	Steeply rolling	Grazing	VI	Grazing	Private
37	5	2	Lots 9,10	27.39	Steeply rolling	Grazing	VI	Grazing	Private
		4	Lots 9,10	26.99	Steeply rolling	Grazing	VI	Grazing	Private
		5	Lots 11,12	26.77	Steeply rolling	Grazing	VI	Grazing	Private
	6	1	SE¼NE¼, Lots 7,8	67.65	Steeply rolling	Grazing	VI	Grazing	Private
		2	Lots 17,18,19	46.17	Steeply rolling	Grazing	VI	Grazing	Private
		23	Lots 2,3,4	50.67	Steeply rolling	Grazing	VI	Grazing	Private
Hill County									
North	East								
28	16	1	Lots 8,13,14	103.84	Mountainous rough	Grazing	90/VI:13.84/VII	Grazing, Wildlife	Private
		32	NW¼, N½SW¼	240.00	Mountainous rough	Grazing	VII	Grazing, Wildlife	Private
		33	N½NE¼	80.00	Mountainous rough	Grazing	VII	Grazing, Wildlife	Private

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Table 8.- Summarized Description and Classification of Public Domain Lands by Counties Within the Disposal Subarea of the Marias River Area, Montana, 1952 1/ -Continued

Montana Principal Meridian									
Twp. North	Range East	Sec.	Subdivision	Acres	General Land Character	Present Land Use	Land Capability Classification 2/	Principal Suitability	Proposed Management
Hill County									
28	16	34	N½NW¼, NW¼NE¼	120.00	Mountainous rough	Grazing	VII	Grazing, Wildlife	Private
28	17	5	N½SW¼	80.00	Mountainous rough	Grazing	60/VI:20/VII	Grazing	Private
		18	SW¼SE¼	40.00	Mountainous rough	Grazing	VII	Grazing	Private
		19	NW¼NE¼	40.00	Mountainous rough	Grazing	VII	Grazing	Private
29	8	7	Lot 4, SE¼SW¼	78.25	Mountainous rough	Grazing	VI	Grazing	Private
		18	N½NE¼	80.00	Mountainous rough	Grazing	40/VI:40/VII	Grazing	Private
		21	Lot 27, SW¼NW¼, SW¼SE¼	99.12	Steeply rolling rough	Grazing	80/VI:19.12/VII	Grazing	Private
		24	Lot 3	1.90	Steeply rolling rough	Grazing	VII	Grazing	Private
		25	S½NE¼, SE¼NW¼	120.00	Steeply rolling rough	Grazing	20/VI:100/VII	Grazing	Private
		26	Lots 2,4,10	67.75	Steeply rolling rough	Grazing	VII	Grazing	Private
		28	W½NE¼	80.00	Steeply rolling rough	Grazing	20/VI:60/VII	Grazing	Private
30	11	1	NE¼SE¼	40.00	Gently rolling, rough	Grazing	20/V:20/VI	Grazing	Private
		12	N½SE¼	80.00	Gently rolling, rough	Grazing	VI	Grazing	Private
30	16	35	Lots 3,4	21.17	Mountainous rough	Grazing	VIII	Grazing	Private
	17	4	NW¼SE¼	40.00	Steeply rolling	Grazing	VI	Grazing	Private
		8	NE¼SE¼	40.00	Steeply rolling	Grazing	30/VI:10/VII	Grazing	Private
		29	Lot 7	8.12	Steeply rolling	Grazing	VI	Grazing	Private
31	12	3	Lots 2,4,S½SE¼	159.56	Steeply rolling	Grazing	139.56/V:20/VI	Grazing	Private
		9	W½SE¼	80.00	Steeply rolling	Grazing	VI	Grazing	Private
	13	17	NE¼SE¼	40.00	Gently rolling	Grazing	VI	Grazing	Private
		20	NW¼SE¼	40.00	Gently rolling	Grazing	VI	Grazing	Private
		33	SW¼SE¼	40.00	Gently rolling	Grazing	20/VI:20/VII	Grazing	Private
	14	9	Lot 4	10.45	Gently rolling	Grazing	V	Grazing	Private
	16	12	SW¼NW¼	40.00	Gently rolling	Grazing	V	Grazing	Private
		24	NW¼SE¼	40.00	Gently rolling	Grazing	VI	Grazing	Private
	17	4	SW¼SE¼	40.00	Gently rolling	Grazing	VI	Grazing	Private
		5	SE¼SE¼	40.00	Gently rolling	Grazing	VI	Grazing	Private
		6	Lot 3	40.51	Gently rolling	Grazing	VI	Grazing	Private

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Table 8.- Summarized Description and Classification of Public Domain Lands by Counties Within the Disposal Subarea of the Marias River Area, Montana, 1952 1/ —Continued

Montana Principal Meridian			Subdivision	Acres	General Land Character	Present Land Use	Land Capability Classification 2/	Principal Suitability	Proposed Management
Twp. North	Range East	Sec.							
Hill County									
31	17	15	SE¼SW¼	40.00	Gently rolling	Grazing	VI	Grazing	Private
		20	SE¼NE¼	40.00	Gently rolling	Grazing	10/VI:30/VII	Grazing	Private
		34	SW¼NE¼	40.00	Gently rolling	Grazing	VI	Grazing	Private
32	16	30	Lot 4	34.10	Gently rolling	Grazing	VII	Grazing	Private
32	17	9	NE¼SE¼	40.00	Gently rolling	Grazing	25/VI:15/VII	Grazing	Private
		10	NE¼NE¼	40.00	Gently rolling	Grazing	25/VI:15/VII	Grazing	Private
		21	NW¼NW¼	40.00	Gently rolling	Grazing	VII	Grazing	Private
		22	SW¼SW¼	40.00	Gently rolling	Grazing	VI	Grazing	Private
33	13	23	N½NE¼	80.00	Gently rolling	Grazing	VI	Grazing	Private
	14	20	NE¼NE¼	40.00	Gently rolling	Grazing	VI	Grazing	Private
		21	SE¼SW¼	40.00	Gently rolling	Grazing	20/VI:20/VII	Grazing	Private
		22	SW¼SW¼	40.00	Gently rolling	Grazing	80/V:20/VI	Grazing	Private
		27	NE¼NW¼	40.00	Gently rolling	Grazing	V	Grazing	Private
		28	NW¼NE¼, SE¼NE¼	80.00	Gently rolling	Grazing	40/VI:40/VII	Grazing	Private
	15	21	SE¼	160.00	Gently rolling	Grazing	90/VI:70/VII	Grazing	Private
	17	6	SW¼NE¼	40.00	Gently rolling	Grazing	30/VI:10/VII	Grazing	Private
34	10	3	SE¼NW¼	40.00	Gently rolling	Grazing	20/VI:20/VII	Grazing	Private
		23	S½NE¼, SE¼NW¼	120.00	Gently rolling	Grazing	15/V:105/VI	Grazing	Private
34	13	12	NW¼NW¼	40.00	Gently rolling	Grazing	VII	Grazing	Private
	14	1	SE¼NE¼	40.00	Gently rolling	Grazing	VI	Grazing	Private
	15	5	SE¼NW¼, N½SW¼,SE¼SW¼	160.00	Gently rolling	Grazing	65/V;95/VI	Grazing	Private
		6	SE¼NW¼	40.00	Gently rolling	Grazing	35/V:5/VI	Grazing	Private
		9	N½NW¼, SE¼SE¼	120.00	Gently rolling	Grazing	VI	Grazing	Private
		10	N½NW¼	80.00	Gently rolling	Grazing	VII	Grazing	Private
		11	S½SE¼	80.00	Gently rolling	Grazing	65/V:15/VII	Grazing	Private
		14	NW¼NW¼	40.00	Gently rolling	Grazing	V	Grazing	Private
	16	15	S½SE¼	80.00	Gently rolling	Grazing	VI	Grazing	Private
	17	31	Lot 3, E½SW¼, W½SE¼, SE¼SE¼, SW¼NE¼	278.05	Gently rolling	Grazing	158.05/V:120/VI	Grazing	Private

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Table 8.- Summarized Description and Classification of Public Domain Lands by Counties Within the Disposal Subarea of the Marias River Area, Montana, 1952 1/ -Continued

Montana Principal Meridian			Subdivision	Acres	General Land Character	Present Land Use	Land Capability Classification 2/	Principal Suitability	Proposed Management
Twp. North	Range East	Sec.							
Hill County									
35	8	14	NE¼NE¼	40.00	Gently rolling	Grazing	VII	Grazing	Private
		22	N½NE¼, NE¼NW¼	120.00	Gently rolling	Grazing	80/V:40/VI	Grazing	Private
		24	SW¼SE¼	40.00	Gently rolling	Grazing	V	Grazing	Private
	10	27	N½SW¼	80.00	Gently rolling	Grazing	V	Grazing	Private
		34	NE¼SW¼	40.00	Gently rolling	Grazing	V	Grazing	Private
	11	9	SW¼SW¼	40.00	Gently rolling	Grazing	VI	Grazing	Private
	12	2	SW¼SE¼	40.00	Gently rolling	Grazing	30/VI:10/VII	Grazing	Private
		4	Lot 3, SE¼NW¼	80.79	Gently rolling	Grazing	40.79/VI:40/VII	Grazing	Private
		7	NW¼SE¼	40.00	Gently rolling	Grazing	VI	Grazing	Private
		12	SW¼NE¼, SW¼NW¼	80.00	Gently rolling	Grazing	75/VI:5/VII	Grazing	Private
		17	NW¼NW¼	40.00	Gently rolling	Grazing	VI	Grazing	Private
		18	SE¼SW¼, S½SE¼	120.00	Gently rolling	Grazing	VI	Grazing	Private
		21	NW¼NW¼, SE¼NW¼	80.00	Gently rolling	Grazing	VI	Grazing	Private
		35	NE¼SE¼	40.00	Gently rolling	Grazing	V	Grazing	Private
	13	23	SE¼NE¼, SW¼SW¼	80.00	Gently rolling	Grazing	VI	Grazing	Private
	14	18	SE¼SW¼	40.00	Gently rolling	Grazing	30/VI:10/VII	Grazing	Private
	15	11	SE¼SW¼	40.00	Gently rolling	Grazing	30/VI:10/VII	Grazing	Private
		14	SW¼SE¼	40.00	Gently rolling	Grazing	20/VI:20/VII	Grazing	Private
		17	N½SE¼	80.00	Gently rolling	Grazing	V	Grazing	Private
		19	Lots 1,2	71.29	Gently rolling	Grazing	V	Grazing	Private
		22	NW¼NE¼	40.00	Gently rolling	Grazing	V	Grazing	Private
		23	N½NW¼	80.00	Gently rolling	Grazing	V	Grazing	Private
		26	NE¼SW¼, NW¼SE¼	80.00	Gently rolling	Grazing	VII	Grazing	Private
36	8	28	N½SE¼	80.00	Gently rolling	Grazing	VI	Grazing	Private
		35	NE¼SW¼	40.00	Gently rolling	Grazing	VI	Grazing	Private
	11	1	Lots 3,4, SW¼	242.02	Gently rolling	Grazing	82.02/V:160/VI	Grazing	Private
		2	Lots 1,2	81.48	Gently rolling	Grazing	V	Grazing	Private
		4	Lot 3, S½NW¼	119.54	Gently rolling	Grazing	60/VI:59.54/VII	Grazing	Private
		5	Lot 1	39.57	Gently rolling	Grazing	20/VI:19.57/VII	Grazing	Private

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Table 8.- Summarized Description and Classification of Public Domain Lands by Counties Within the Disposal Subarea of the Marias River Area, Montana, 1952 1/ -Continued

Montana Principal Meridian									
Twp. North	Range East	Sec.	Subdivision	Acres	General Land Character	Present Land Use	Land Capability Classification 2/	Principal Suitability	Proposed Management
Hill County									
36	11	8	NE¼	160.00	Gently rolling	Grazing	V	Grazing	Private
		10	SE¼NW¼, NE¼SW¼, S½SW¼, SW¼SE¼	200.00	Gently rolling	Grazing	30/V:170/VI	Grazing	Private
		11	E½NW¼, N½SE¼	160.00	Gently rolling	Grazing	120/V:40/VI	Grazing	Private
		12	SE¼NE¼	40.00	Gently rolling	Grazing	20/VI:20/VII	Grazing	Private
	12	7	Lots 1,2,3, E½W½	266.13	Gently rolling	Grazing	35/V:160.37/VI, 70.76/VII	Grazing	Private
		14	SE¼SW¼	40.00	Gently rolling	Grazing	V	Grazing	Private
		18	N½NE¼, SE¼NE¼	120.00	Gently rolling	Grazing	110/V:10/VI	Grazing	Private
		27	NE¼NW¼, SE¼NW¼	80.00	Gently rolling	Grazing	VI	Grazing	Private
		28	NE¼SW¼	40.00	Gently rolling	Grazing	20/V:20/VI	Grazing	Private
		29	NE¼NE¼	40.00	Gently rolling	Grazing	20/V:20/VI	Grazing	Private
		30	NW¼NE¼	40.00	Gently rolling	Grazing	VI	Grazing	Private
		31	E½NW¼	80.00	Gently rolling	Grazing	50/VI:30/VII	Grazing	Private
		32	NE¼NW¼	40.00	Gently rolling	Grazing	10/VI:30/VII	Grazing	Private
		33	S½SW¼	80.00	Gently rolling	Grazing	40/VI:40/VII	Grazing	Private
	15	1	Lot 4, NW¼SW¼	65.92	Gently rolling	Grazing	VI	Grazing	Private
		19	Lots 2,3,4,NW¼SW¼	183.24	Gently rolling	Grazing	VII	Grazing	Private
		20	NW¼NW¼, E½SW¼	200.00	Gently rolling	Grazing	70/VI:115/VII, 15/VIII	Grazing	Private
		27	SE¼NW¼, N½SE¼	120.00	Gently rolling	Grazing	60/VI:60/VII	Grazing	Private
		29	E½SE¼	80.00	Gently rolling	Grazing	60/V:10/VI: 10/VII	Grazing	Private
		32	SW¼SW¼	40.00	Gently rolling	Grazing	VI	Grazing	Private
	16	30	Lot 3, NE¼SW¼, NW¼SE¼	115.03	Gently sloping	Grazing	VII	Grazing	Private
		35	W½NE¼	80.00	Gently sloping	Grazing	V	Grazing	Private
	17	31	Lot 2	34.12	Gently sloping	Grazing	VI	Grazing	Private
37	8	1	N½SW¼	80.00	Steeply rolling	Grazing	35/VII:45/VIII	Grazing	Private
		2	S½NE¼, SE¼	240.00	Steeply rolling	Grazing	80/VII:190/VIII	Grazing	Private

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Table 8.- Summarized Description and Classification of Public Domain Lands by Counties Within the Disposal Subarea of the Marias River Area, Montana, 1952 1/ -Continued

Montana Principal Meridian									
Twp. North	Range East	Sec.	Subdivision	Acres	General Land Character	Present Land Use	Land Capability Classification 2/	Principal Suitability	Proposed Management
Hill County									
37	8	9	SE¼SE¼	40.00	Steeply rolling	Grazing	20/VI:20/VII	Grazing	Private
		10	SW¼SE¼	40.00	Steeply rolling	Grazing	25/VI:15/VII	Grazing	Private
		11	N½, W½SW¼	400.00	Steeply rolling	Grazing	160/VI:210/VII, 30/VIII	Grazing	Private
		23	NW¼SW¼, E½SE¼	120.00	Steeply rolling	Grazing	90/VI:30/VII	Grazing	Private
		27	S½NE¼	80.00	Steeply rolling	Grazing	VI	Grazing	Private
		30	Lot 2	39.57	Steeply rolling	Grazing	VI	Grazing	Private
	9	1	Lots 9,10,11,12	61.32	Steeply rolling	Grazing	VII	Grazing	Private
		2	SE¼SE¼	40.00	Steeply rolling	Grazing	VII	Grazing	Private
		4	Lots 9,10,11	44.34	Steeply rolling	Grazing	VII	Grazing	Private
		5	Lots 8,9,10, SW¼NW¼	84.79	Steeply rolling	Grazing	VII	Grazing	Private
		11	NE¼NE¼	40.00	Steeply rolling	Grazing	VII	Grazing	Private
		12	NE¼NE¼	40.00	Steeply rolling	Grazing	VII	Grazing	Private
	10	7	Lot 1	39.95	Steeply rolling	Grazing	VII	Grazing	Private
	11	2	Lots 5,6,7,8, SW¼NE¼	114.04	Steeply rolling	Grazing	VI	Grazing	Private
		19	NW¼NW¼	40.00	Steeply rolling	Grazing	VII	Grazing	Private
	14	1	E½SE¼	80.00	Steeply rolling	Grazing	VI	Grazing	Private
		6	Lots 7,8,9,10,11, SE¼SW¼, SW¼SE¼	214.43	Gently rolling	Grazing	VI	Grazing	Private
		11	W½	320.00	Gently rolling	Grazing	VI	Grazing	Private
		32	E½NW¼	80.00	Gently rolling	Grazing	VI	Grazing	Private
	15	6	Lots 9,10	53.73	Gently rolling	Grazing	V	Grazing	Private
		7	SE¼SE¼	40.00	Gently rolling	Grazing	30/V:10/VI	Grazing	Private
		28	W½SW¼	80.00	Gently rolling	Grazing	VI	Grazing	Private
		29	SE¼NE¼, NE¼SE¼	80.00	Gently rolling	Grazing	VI	Grazing	Private
	16	9	SW¼NW¼	40.00	Gently rolling	Grazing	V	Grazing	Private
	17	7	SE¼SE¼	40.00	Gently rolling	Grazing	20/V:20/VI	Grazing	Private

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Table 8.- Summarized Description and Classification of Public Domain Lands by Counties Within the Disposal Subarea of the Marias River Area, Montana, 1952 1/ -Continued

Montana Principal Meridian			Subdivision	Acres	General Land Character	Present Land Use	Land Capability Classification 2/	Principal Suitability	Proposed Management
Twp. North	Range East	Sec.							
Liberty County									
28	4	3	NW¼SW¼	40.00	Gently rolling	Grazing	VI	Grazing	Private
		4	Lot 4	40.16	Gently rolling	Grazing	VI	Grazing	Private
		9	N½NW¼	80.00	Gently rolling	Grazing	VI	Grazing	Private
		10	NW¼SW¼	40.00	Gently rolling	Grazing	VI	Grazing	Private
		11	N½NW¼, NE¼	240.00	Gently rolling	Grazing	VI	Grazing	Private
		12	SE¼NW¼, SW¼NE¼	80.00	Gently rolling	Grazing	VI	Grazing	Private
		18	Lot 1	19.33	Gently rolling	Grazing	VI	Grazing	Private
	5	31	Lot 4	48.00	Gently rolling	Grazing	VI	Grazing	Private
		32	S½S½	160.00	Gently rolling	Grazing	VI	Grazing	Private
	6	5	Lot 4	35.45	Gently rolling	Grazing	30/VI:5.45/VII	Grazing	Private
	7	6	Lots 3,4, NW¼SE¼	99.02	Gently rolling	Grazing	59.02/VI:40/VII	Grazing	Private
29	4	22	SE¼	160.00	Gently rolling	Grazing	60/VI:100/VII	Grazing	Private
		26	W½SE¼	80.00	Gently rolling	Grazing	VI	Grazing	Private
		27	NE¼, S½	480.00	Gently rolling	Grazing	110/VI:370/VII	Grazing	Private
		33	NE¼	160.00	Gently to steeply rolling	Grazing	110/VI:50/VII	Grazing	Private
		34	N½, N½S½, SE¼SW¼	520.00	Gently to steeply rolling	Grazing	250/VI:270/VII	Grazing	Private
	5	19	Lot 2	39.04	Gently to steeply rolling	Grazing	VI	Grazing	Private
		28	NW¼NW¼	40.00	Gently to steeply rolling	Grazing	30/VI:10/VII	Grazing	Private
		35	N½NE¼	80.00	Gently to steeply rolling	Grazing	60/VI:20/VII	Grazing	Private
	7	30	Lot 1, NE¼NW¼, N½NE¼	159.41	Steeply rolling	Grazing	34.41/V:125/VII	Grazing	Private
30	7	2	N½S½	160.00	Steeply rolling	Grazing	80/VI:80/VII	Grazing	Private
		3	SE¼NE¼	40.00	Steeply rolling	Grazing	10/VI:30/VII	Grazing	Private
31	4	22	NE¼NW¼	40.00	Steeply rolling	Grazing	VI	Grazing	Private
		26	SE¼NW¼, NE¼SW¼,S½SW¼	160.00	Steeply rolling	Grazing	40/VI:120/VII	Grazing	Private
		29	E½NE¼, NE¼SE¼	120.00	Steeply rolling	Grazing	40/VI:80/VII	Grazing	Private
		32	SE¼SE¼	40.00	Steeply rolling	Grazing	30/VI:10/VII	Grazing	Private
		34	NE¼SW¼	40.00	Steeply rolling	Grazing	VII	Grazing	Private
		35	NE¼NW¼	40.00	Steeply rolling	Grazing	5/VI:35/VII	Grazing	Private
	6	28	SE¼SW¼	40.00	Steeply rolling	Grazing	VI	Grazing	Private

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Table 8.- Summarized Description and Classification of Public Domain Lands by Counties Within the Disposal Subarea of the Marias River Area, Montana, 1952 1/ -Continued

Montana Principal Meridian			Subdivision	Acres	General Land Character	Present Land Use	Land Capability Classification 2/	Principal Suitability	Proposed Management
Twp. North	Range East	Sec.							
Liberty County									
31	7	33	NE¼	160.00	Steeply rolling	Grazing	VII	Grazing	Private
		34	W½SE¼, W½NW¼	160.00	Steeply rolling	Grazing	VII	Grazing	Private
32	4	31	NE¼NE¼	40.00	Steeply rolling	Grazing	VI	Grazing	Private
33	6	11	S½SW¼	80.00	Steeply rolling	Grazing	30/VII:50/VIII	Grazing	Private
34	4	7	S½SE¼	80.00	Steeply rolling	Grazing	VI	Grazing	Private
		9	NW¼NW¼	40.00	Steeply rolling	Grazing	VI	Grazing	Private
		11	NW¼SW¼	40.00	Steeply rolling	Grazing	VI	Grazing	Private
		19	E½SW¼, SE¼NE¼	120.00	Steeply rolling	Grazing	VI	Grazing	Private
		30	SE¼NW¼	40.00	Steeply rolling	Grazing	20/VI:20/VII	Grazing	Private
	5	2	Lot 1	39.98	Gently rolling	Grazing	VI	Grazing	Private
		7	SE¼NW¼	40.00	Gently rolling	Grazing	VI	Grazing	Private
34	6	23	SW¼NW¼	40.00	Gently rolling	Grazing	VI	Grazing	Private
	7	28	NE¼NE¼	40.00	Gently rolling	Grazing	VI	Grazing	Private
35	4	8	SW¼NE¼	40.00	Gently rolling	Grazing	VI	Grazing	Private
		33	SE¼NW¼, NE¼SW¼	80.00	Gently rolling	Grazing	VI	Grazing	Private
		35	SE¼NE¼	40.00	Gently rolling	Grazing	VI	Grazing	Private
	5	5	Lot 1, SE¼NE¼	79.82	Gently rolling	Grazing	VI	Grazing	Private
		13	SW¼SE¼	40.00	Gently rolling	Grazing	VI	Grazing	Private
		22	SE¼SE¼	40.00	Gently rolling	Grazing	VI	Grazing	Private
		24	E½NW¼, NW¼SE¼, S½SE¼	200.00	Gently rolling	Grazing	VI	Grazing	Private
		25	NE¼, SE¼SW¼	200.00	Gently rolling	Grazing	VI	Grazing	Private
		33	SE¼SE¼	40.00	Gently rolling	Grazing	VI	Grazing	Private
		35	NE¼SW¼	40.00	Gently rolling	Grazing	VI	Grazing	Private
	6	19	Lot 2	29.71	Gently rolling	Grazing	VI	Grazing	Private
		31	NW¼SE¼	40.00	Gently rolling	Grazing	VI	Grazing	Private
36	6	2	Lots 1,2, SW¼NW¼	115.31	Gently rolling	Grazing	80/VI:35.31/VII	Grazing	Private
		18	Lot 4, SE¼SW¼	66.00	Gently rolling	Grazing	VI	Grazing	Private
		19	NE¼SW¼, SE¼SE¼	80.00	Gently rolling	Grazing	VI	Grazing	Private
		20	W½SW¼	80.00	Gently rolling	Grazing	VI	Grazing	Private

-Continued

Table 8.- Summarized Description and Classification of Public Domain Lands by Counties Within the Disposal Subarea of the Marias River Area, Montana, 1952 1/ -Continued

Montana Principal Meridian			Subdivision	Acres	General Land Character	Present Land Use	Land Capability Classification 2/	Principal Suitability	Proposed Management
Twp. North	Range East	Sec.							
Liberty County									
36	6	29	NE¼NW¼, S½NW¼, NW¼SE¼	160.00	Gently rolling	Grazing	VI	Grazing	Private
		32	NW¼NE¼	40.00	Gently rolling	Grazing	VI	Grazing	Private
	7	2	NE¼SE¼	40.00	Gently rolling	Grazing	VI	Grazing	Private
37	4	11	SW¼NE¼	40.00	Gently rolling	Grazing	VI	Grazing	Private
		12	SW¼NE¼	40.00	Gently rolling	Grazing	VI	Grazing	Private
		13	SW¼SW¼, SW¼SE¼	80.00	Gently rolling	Grazing	VI	Grazing	Private
		24	NW¼NW¼	40.00	Gently rolling	Grazing	VI	Grazing	Private
	5	3	SW¼SW¼	40.00	Gently rolling	Grazing	VI	Grazing	Private
		4	Lot 1	42.42	Gently rolling	Grazing	VI	Grazing	Private
		8	S½SW¼	80.00	Gently rolling	Grazing	VI	Grazing	Private
		10	NW¼NE¼, NW¼SW¼, SW¼SE¼	120.00	Gently rolling	Grazing	VI	Grazing	Private
		12	NE¼NW¼	40.00	Gently rolling	Grazing	VI	Grazing	Private
		14	NW¼NW¼, SW¼SW¼, SE¼SE¼	120.00	Gently rolling	Grazing	70/VI:50/VII	Grazing	Private
		17	SE¼NE¼	40.00	Gently rolling	Grazing	VI	Grazing	Private
		19	NW¼SE¼	40.00	Gently rolling	Grazing	VI	Grazing	Private
	6	4	SE¼	160.00	Gently rolling	Grazing	130/VI:30/VII	Grazing	Private
		9	NE¼	160.00	Gently rolling	Grazing	130/VI:30/VII	Grazing	Private
		19	SE¼NE¼	40.00	Gently rolling	Grazing	VI	Grazing	Private
		29	NW¼NE¼	40.00	Gently rolling	Grazing	VI	Grazing	Private
		34	S½NE¼, E½SE¼	160.00	Gently rolling	Grazing	105/VI:55/VII	Grazing	Private
		35	SW¼SW¼	40.00	Gently rolling	Grazing	20/VI:20/VII	Grazing	Private
Pondera County									
26	2	23	SE¼SE¼	40.00	Steeply rolling	Grazing	VI	Grazing	Private
North	West								
26	1	22	SE¼NW¼	40.00	Steeply rolling	Grazing	VI	Grazing	Private
27	1E	31	Lot 2	37.65	Gently rolling	Grazing	V	Grazing	Private
28	4	17	NW¼SW¼	40.00	Gently rolling	Grazing	VI	Grazing	Private

-Continued

Table 8.- Summarized Description and Classification of Public Domain Lands by Counties Within the Disposal Subarea of the Marias River Area, Montana, 1952 1/ -Continued

Montana Principal Meridian									
Twp. North	Range West	Sec.	Subdivision	Acres	General Land Character	Present Land Use	Land Capability Classification 2/	Principal Suitability	Proposed Management
Pondera County									
28	5	19	SE¼SE¼	40.00	Steeply rolling, rough	Grazing	15/VI:10/VII, 15/VIII	Grazing	Private
		20	NE¼SW¼, SW¼SW¼	80.00	Steeply rolling, rough	Grazing	40/VI:40/VII	Grazing	Private
	7	6	Lots 3,5, SE¼NW¼	156.50	Steeply rolling, rough	Grazing	VI	Grazing	Private
		35	NE¼NE¼	40.00	Steeply rolling, rough	Grazing	VI	Grazing	Private
	8	3	SE¼NW¼	40.00	Steeply rolling, rough	Grazing	VI	Grazing	Private
		5	Lot 7, SW¼SE¼	80.00	Steeply rolling, rough	Grazing	VI	Grazing	Private
		6	Lots 5, 12	68.56	Steeply rolling, rough	Grazing	VI	Grazing	Private
		8	SE¼SW¼	40.00	Steeply rolling, rough	Grazing	VI	Grazing	Private
		13	SW¼SE¼	40.00	Steeply rolling, rough	Grazing	VI	Grazing	Private
		17	SW¼SW¼	40.00	Steeply rolling, rough	Grazing	VI	Grazing	Private
		20	NE¼SE¼	40.00	Gently rolling, undulating	Grazing	VI	Grazing	Private
		21	NW¼SW¼	40.00	Gently rolling, undulating	Grazing	VI	Grazing	Private
		27	NE¼NW¼	40.00	Steeply rolling	Grazing	VI	Grazing	Private
		29	NE¼NE¼, NW¼SW¼	80.00	Steeply rolling	Grazing	VII	Grazing	Private
		32	NW¼NW¼	40.00	Steeply rolling	Grazing	VI	Grazing	Private
	9	23	NE¼SW¼	40.00	Gently rolling	Grazing	VI	Grazing	Private
29	2	26	E½NE¼, SW¼SW¼	120.00	Gently rolling	Grazing	VI	Grazing	Private
	3	9	SW¼SW¼	40.00	Gently rolling	Grazing	VI	Grazing	Private
		33	SE¼SE¼	40.00	Gently rolling	Grazing	VI	Grazing	Private
	4	32	NW¼NE¼	40.00	Gently rolling	Grazing	VI	Grazing	Private
	5	4	SW¼NW¼, E½SW¼	120.00	Level, probably underwater	Grazing	VIII	Grazing	Private
	6	19	E½NE¼	80.00	Level to undulating	Grazing	VI	Grazing	Private
		20	W½NW¼	80.00	Level to undulating	Grazing	VI	Grazing	Private
	7	9	SW¼NW¼	40.00	Level to undulating	Grazing	VI	Grazing	Private
30	6	11	Lot 1	6.05	Gently sloping	Grazing	VI	Grazing	Private
		12	SE¼SW¼	40.00	Gently sloping	Grazing	VI	Grazing	Private
		26	Lot 2	5.69	Gently sloping	Grazing	VI	Grazing	Private
		35	Lot 4	10.40	Gently sloping	Grazing	VI	Grazing	Private

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Table 8.- Summarized Description and Classification of Public Domain Lands by Counties Within the Disposal Subarea of the Marias River Area, Montana, 1952 1/ –Continued

Montana Principal Meridian			Subdivision	Acres	General Land Character	Present Land Use	Land Capability Classification 2/	Principal Suitability	Proposed Management
Twp. North	Range West	Sec.							
Pondera County									
31	5	2	E½SW¼, Lots 4,5,6,7,8, SE¼NW¼, SW¼NE¼, NW¼SE¼,	343.52	Steeply rolling	Grazing	208.52/VI: 135/VII	Grazing	Private
		10	Lots 1,2,3	25.30	Steeply rolling	Grazing	VII	Grazing	Private
		15	Lots 3,4	41.89	Steeply rolling	Grazing	30/VI:11.89/VII	Grazing	Private
		21	Lots 2,4	13.35	Steeply rolling	Grazing	VII	Grazing	Private
		31	Lot 2	30.90	Steeply rolling	Grazing	20/VI:10.90/VII	Grazing	Private
Teton County									
27	8	8	SW¼SW¼	40.00	Steeply rolling	Grazing	VI	Grazing	Private
		23	NW¼NW¼	40.00	Steeply rolling	Grazing	VI	Grazing	Private
	9	2	NE¼SE¼	40.00	Steeply rolling	Grazing	VI	Grazing	Private
		11	SE¼, SE¼NE¼	200.00	Steeply rolling	Grazing	VII	Grazing	Private
		14	W½NE¼, SE¼NW¼	120.00	Steeply rolling	Grazing	VII	Grazing	Private
		15	Lots 2,3,4	133.22	Steeply rolling	Grazing	VII	Grazing	Private
Toole County									
29	2E	4	Lot 3, SE¼NW¼	79.55	Gently rolling	Grazing	50/V:29.55/VI	Grazing	Private
31	1W	27	SW¼SW¼	40.00	Rough to rolling	Grazing	15/VI:25/VII	Grazing	Private
31	1E	31	Lots 6,8	29.30	Gently rolling	Grazing	VII	Grazing	Private
	3E	13	W½SW¼	80.00	Gently rolling	Grazing	40/V:40/VI	Grazing	Private
		15	SW¼SE¼	40.00	Gently rolling	Grazing	20/V:20/VI	Grazing	Private
		22	SE¼NE¼	40.00	Gently rolling	Grazing	V	Grazing	Private
32	1W	6	Lots 1,2, SE¼SW¼	117.33	Gently rolling	Grazing	67.33/VI:50/VII	Grazing	Private
	2W	25	SW¼SE¼	40.00	Steeply rolling	Grazing	VII	Grazing	Private
	4W	5	Lots 1,2, NW¼SE¼,SW¼SW¼	113.71	Gently sloping	Grazing	VI	Grazing	Private
		6	Lot 7, E½SE¼	107.33	Gently sloping	Grazing	VI	Grazing	Private

–Continued

Table 8.- Summarized Description and Classification of Public Domain Lands by Counties Within the Disposal Subarea of the Marias River Area, Montana, 1952 1/ -Continued

Montana Principal Meridian			Subdivision	Acres	General Land Character	Present Land Use	Land Capability Classification 2/	Principal Suitability	Proposed Management
Twp. North	Range	Sec.							
Toole County									
32	2E	2	Lot 4, SW¼NW¼	75.72	Steeply rolling	Grazing	V	Grazing	Private
33	1W	1	SE¼SE¼	40.00	Steeply sloping	Grazing	VII	Grazing	Private
		12	E½NE¼	80.00	Steeply sloping	Grazing	30/VII:50/VIII	Grazing	Private
		21	NW¼SW¼	40.00	Steeply sloping	Grazing	VI	Grazing	Private
		28	SE¼SE¼	40.00	Steeply sloping	Grazing	VI	Grazing	Private
		30	W½NE¼, SW¼NW¼	120.00	Steeply sloping	Grazing	VII	Grazing	Private
		31	SW¼SE¼	40.00	Steeply sloping	Grazing	VII	Grazing	Private
		32	S½NW¼, S½SW¼	160.00	Steeply rolling	Grazing	VII	Grazing	Private
	4W	8	SW¼SW¼	40.00	Steeply rolling	Grazing	VI	Grazing	Private
		17	SE¼SW¼	40.00	Steeply rolling	Grazing	VI	Grazing	Private
		20	W½NW¼, SW¼NW¼	120.00	Steeply rolling	Grazing	VI	Grazing	Private
		24	S½SW¼,SW¼SE¼	120.00	Steeply rolling	Grazing	VI	Grazing	Private
		25	NW¼NE¼	40.00	Steeply rolling	Grazing	VI	Grazing	Private
	1E	7	Lots 1,2,3,4, E½W½	312.94	Steeply rolling	Grazing	176.50/VI:60/VII 76.44/VIII	Grazing	Private
		18	W½SE¼	80.00	Steeply rolling	Grazing	20/VII:60/VIII	Grazing	Private
		19	Lot 1, NW¼NE¼	78.57	Steeply rolling	Grazing	VII	Grazing	Private
		27	NW¼NW¼	40.00	Steeply rolling	Grazing	VI	Grazing	Private
34	1W	6	Lot 7, SE¼SW¼	76.95	Gently rolling	Grazing	VI	Grazing	Private
		21	SW¼SE¼	40.00	Gently rolling	Grazing	VI	Grazing	Private
		28	NW¼NE¼	40.00	Gently rolling	Grazing	VI	Grazing	Private
		28	W½SW¼	80.00	Gently rolling	Grazing	40/VI:40/VII	Grazing	Private
		29	N½SE¼, SE¼SE¼	120.00	Gently rolling	Grazing	VI	Grazing	Private
		32	NW¼SW¼	40.00	Gently rolling	Grazing	VI	Grazing	Private
	2W	1	N½S½, SW¼SW¼	200.00	Gently rolling	Grazing	40/VI:100/VII, 60/VIII	Grazing	Private
		2	SE¼NE¼	40.00	Gently rolling	Grazing	VI	Grazing	Private
		11	NE¼SW¼	40.00	Gently rolling	Grazing	VI	Grazing	Private
		12	NW¼NW¼, SE¼NW¼	80.00	Gently rolling	Grazing	VI	Grazing	Private
		34	S½SW¼	80.00	Gently rolling	Grazing	VI	Grazing	Private

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Table 8.- Summarized Description and Classification of Public Domain Lands by Counties Within the Disposal Subarea of the Marias River Area, Montana, 1952 1/ -Continued

Montana Principal Meridian									
Twp. North	Range	Sec.	Subdivision	Acres	General Land Character	Present Land Use	Land Capability Classification 2/	Principal Suitability	Proposed Management
Toole County									
34	4W	6	SE¼NE¼	40.00	Gently rolling	Grazing	VI	Grazing	Private
		20	SE¼NE¼	40.00	Gently rolling	Grazing	VI	Grazing	Private
		24	SW¼SW¼	40.00	Gently rolling	Grazing	VI	Grazing	Private
		25	SE¼NW¼, W½SW¼	120.00	Gently rolling	Grazing	VI	Grazing	Private
		26	E½SE¼	80.00	Gently rolling	Grazing	VI	Grazing	Private
	1E	18	NE¼NE¼	40.00	Gently rolling	Grazing	VII	Grazing	Private
	2E	13	N½SW¼, E½SE¼	160.00	Gently rolling	Grazing	145/VI:15/VII	Grazing	Private
		20	NE¼NW¼	40.00	Gently rolling	Grazing	VI	Grazing	Private
		33	W½NE¼, SE¼NE¼	120.00	Gently rolling	Grazing	VI	Grazing	Private
		35	SW¼	160.00	Gently rolling	Grazing	VII	Grazing	Private
	3E	5	SW¼SW¼	40.00	Gently rolling	Grazing	VI	Grazing	Private
		6	SW¼NW¼	40.00	Gently rolling	Grazing	VI	Grazing	Private
		32	NE¼NE¼	40.00	Gently rolling	Grazing	VI	Grazing	Private
35	1W	1	Lot 1	40.05	Gently rolling	Grazing	VI	Grazing	Private
		2	Lots 1, 2	80.87	Gently rolling	Grazing	VI	Grazing	Private
		11	SE¼SW¼	40.00	Gently rolling	Grazing	VI	Grazing	Private
		19	NE¼NW¼	40.00	Gently rolling	Grazing	VI	Grazing	Private
		26	SW¼SE¼	40.00	Steeply rolling	Grazing	VI	Grazing	Private
		28	W½NE¼, NW¼SE¼	120.00	Steeply rolling	Grazing	VI	Grazing	Private
		30	NE¼NW¼	40.00	Steeply rolling	Grazing	VI	Grazing	Private
		31	Lot 4, SE¼NW¼	76.88	Steeply rolling	Grazing	VI	Grazing	Private
	2W	2	SE¼	160.00	Steeply rolling	Grazing	130/VII:30/VIII	Grazing	Private
		12	N½, N½SW¼, SE¼SW¼	440.00	Steeply rolling	Grazing	90/VI:350/VII	Grazing	Private
		13	E½NW¼	80.00	Steeply rolling	Grazing	50/VII:30/VIII	Grazing	Private
		23	S½NW¼	80.00	Steeply rolling	Grazing	VI	Grazing	Private
		25	S½SW¼	80.00	Steeply rolling	Grazing	VI	Grazing	Private
	4W	1	SW¼NW¼	40.00	Gently sloping	Grazing	VI	Grazing	Private
		10	NW¼SW¼	40.00	Gently rolling	Grazing	VI	Grazing	Private
		13	W½SE¼	80.00	Steeply rolling	Grazing	VII	Grazing	Private
		14	N½NW¼	80.00	Steeply rolling	Grazing	50/VI:30/VII	Grazing	Private
		15	N½NE¼	80.00	Steeply rolling	Grazing	60/VI:20/VII	Grazing	Private
		17	SE¼NE¼, NE¼NW¼	80.00	Steeply rolling	Grazing	VII	Grazing	Private

-Continued

Table 8.- Summarized Description and Classification of Public Domain Lands by Counties Within the Disposal Subarea of the Marias River Area, Montana, 1952 1/ –Continued

Montana Principal Meridian									
Twp. North	Range	Sec.	Subdivision	Acres	General Land Character	Present Land Use	Land Capability Classification 2/	Principal Suitability	Proposed Management
Toole County									
35	4W	19	E½SE¼	80.00	Steeply rolling	Grazing	VII	Grazing	Private
		20	N½SW¼	80.00	Steeply rolling	Grazing	VII	Grazing	Private
		22	N½NW¼	80.00	Steeply rolling	Grazing	10/VI:70/VII	Grazing	Private
		23	SE¼SE¼	40.00	Steeply rolling	Grazing	VI	Grazing	Private
		24	S½SW¼, NE¼SW¼	120.00	Steeply rolling	Grazing	VI	Grazing	Private
		25	SE¼NE¼	40.00	Steeply rolling	Grazing	VI	Grazing	Private
		34	NW¼NW¼	40.00	Steeply rolling	Grazing	VI	Grazing	Private
35	1E	30	SE¼NW¼	40.00	Gently rolling	Grazing	VI	Grazing	Private
		31	SE¼SW¼	40.00	Gently rolling	Grazing	VI	Grazing	Private
	2E	4	Lots 2,3,4,S½SE¼,SE¼NW¼	236.81	Gently to steeply rolling	Grazing	VI	Grazing	Private
		8	NW¼NW¼	40.00	Gently to steeply rolling	Grazing	VI	Grazing	Private
		9	SE¼NE¼, SE¼	200.00	Steeply rolling	Grazing	VI	Grazing	Private
		12	NW¼SW¼, NE¼SE¼	80.00	Steeply rolling	Grazing	VI	Grazing	Private
		15	NE¼NW¼, S½NW¼, N½SW¼	200.00	Steeply rolling	Grazing	VI	Grazing	Private
		19	NW¼SE¼	40.00	Steeply rolling	Grazing	VI	Grazing	Private
		29	SW¼NW¼	40.00	Gently rolling	Grazing	VI	Grazing	Private
		30	SE¼NE¼	40.00	Gently rolling	Grazing	VI	Grazing	Private
		32	NW¼SE¼	40.00	Gently rolling	Grazing	VI	Grazing	Private
		33	N½SW¼	80.00	Gently rolling	Grazing	VI	Grazing	Private
	3E	1	NE¼SE¼	40.00	Steeply rolling	Grazing	VI	Grazing	Private
		4	SW¼NW¼	40.00	Steeply rolling	Grazing	VI	Grazing	Private
		7	Lot 3	33.79	Steeply rolling	Grazing	VI	Grazing	Private
		8	NW¼SE¼	40.00	Steeply rolling	Grazing	VI	Grazing	Private
		9	S½NW¼	80.00	Steeply rolling	Grazing	VI	Grazing	Private
		10	NE¼NW¼, NW¼SW¼	80.00	Steeply rolling	Grazing	VI	Grazing	Private
		15	NE¼NW¼, SW¼NW¼, NW¼SW¼	120.00	Steeply rolling	Grazing	VI	Grazing	Private
		17	NW¼SE¼	40.00	Steeply rolling	Grazing	VI	Grazing	Private
		19	NE¼SE¼	40.00	Steeply rolling	Grazing	VI	Grazing	Private
		13	NE¼NE¼	40.00	Steeply rolling	Grazing	VI	Grazing	Private
		28	SW¼SW¼	40.00	Steeply rolling	Grazing	VI	Grazing	Private

–Continued

Table 8.- Summarized Description and Classification of Public Domain Lands by Counties Within the Disposal Subarea of the Marias River Area, Montana, 1952 1/ -Continued

Montana Principal Meridian									
Twp. North	Range	Sec.	Subdivision	Acres	General Land Character	Present Land Use	Land Capability Classification 2/	Principal Suitability	Proposed Management
Toole County									
36	4W	5	SW¼SW¼	40.00	Gently rolling	Grazing	VI	Grazing	Private
		7	NW¼NE¼	40.00	Gently rolling	Grazing	VI	Grazing	Private
		8	NW¼NW¼	40.00	Gently rolling	Grazing	VI	Grazing	Private
		24	NE¼NW¼, NW¼SW¼, SE¼SW¼	120.00	Gently rolling	Grazing	VI	Grazing	Private
		25	NE¼NW¼, SE¼SW¼	80.00	Gently rolling	Grazing	VI	Grazing	Private
		26	NE¼SE¼	40.00	Gently rolling	Grazing	VI	Grazing	Private
		30	NW¼NE¼	40.00	Gently rolling	Grazing	VI	Grazing	Private
36	1E	13	W½SW¼	80.00	Gently rolling	Grazing	VI	Grazing	Private
		14	E½SE¼	80.00	Gently rolling	Grazing	VI	Grazing	Private
	2E	2	Lots 1,4, SW¼NE¼	117.92	Gently to steeply rolling	Grazing	VI	Grazing	Private
		4	Lot 4	38.60	Gently to steeply rolling	Grazing	VI	Grazing	Private
		10	NW¼NW¼, NE¼NE¼, NE¼SW¼	120.00	Gently to steeply rolling	Grazing	VI	Grazing	Private
		15	NW¼NE¼, SE¼NE¼, SW¼SW¼	120.00	Gently to steeply rolling	Grazing	VI	Grazing	Private
		17	N½N½, NE¼SW¼	200.00	Gently to steeply rolling	Grazing	VI	Grazing	Private
		18	E½SE¼	80.00	Gently to steeply rolling	Grazing	VI	Grazing	Private
		19	SE¼SW¼, SW¼SE¼	80.00	Gently rolling	Grazing	VI	Grazing	Private
		20	NW¼NW¼	40.00	Gently rolling	Grazing	VI	Grazing	Private
		24	SW¼NE¼	40.00	Gently rolling	Grazing	VI	Grazing	Private
	3E	1	NW¼SW¼	40.00	Gently rolling	Grazing	VI	Grazing	Private
		5	NE¼SE¼	40.00	Gently rolling	Grazing	VI	Grazing	Private
		8	NE¼SE¼	40.00	Gently rolling	Grazing	VII	Grazing	Private
		9	NE¼SW¼	40.00	Gently rolling	Grazing	VII	Grazing	Private
		11	NW¼SE¼	40.00	Gently rolling	Grazing	VI	Grazing	Private
		13	SE¼NW¼	40.00	Gently rolling	Grazing	VI	Grazing	Private
		14	W½NW¼	80.00	Gently rolling	Grazing	VI	Grazing	Private
		18	NW¼NE¼, Lots 5,6,11,12	95.58	Gently rolling	Grazing	VI	Grazing	Private
		20	SE¼NW¼	40.00	Gently rolling	Grazing	VI	Grazing	Private
		21	NE¼SE¼	40.00	Gently rolling	Grazing	VI	Grazing	Private
		22	NE¼NE¼	40.00	Gently rolling	Grazing	VI	Grazing	Private
		28	S½SE¼, SE¼SW¼	120.00	Gently rolling	Grazing	40/VI:80/VII	Grazing	Private

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Table 8.- Summarized Description and Classification of Public Domain Lands by Counties Within the Disposal Subarea of the Marias River Area, Montana, 1952 1/ -Continued

Montana Principal Meridian Twp. North	Range	Sec.	Subdivision	Acres	General Land Character	Present Land Use	Land Capability Classification 2/	Principal Suitability	Proposed Management
Toole County									
36	3E	29	S½NW¼, SW¼NE¼, SW¼, N½SE¼, SW¼SE¼	400.00	Rough mountainous	Grazing	300/VII:100/VIII	Grazing	Private
		30	SE¼SE¼	40.00	Steeply rolling	Grazing	VII	Grazing	Private
		31	Lots 2,3, NE¼NE¼	105.90	Steeply rolling	Grazing	VII	Grazing	Private
		32	N½NW¼, NW¼NE¼	120.00	Steeply rolling	Grazing	VII	Grazing	Private
37	3W	7	Lot 4	38.35	Gently rolling	Grazing	VII	Grazing	Private
		8	NW¼SW¼	40.00	Gently rolling	Grazing	VII	Grazing	Private
		9	SE¼SW¼	40.00	Gently rolling	Grazing	VII	Grazing	Private
	4W	5	Lot 1	12.09	Gently rolling	Grazing	VI	Grazing	Private
		13	NW¼NE¼	40.00	Gently rolling	Grazing	VI	Grazing	Private
	2W	21	NW¼NE¼	40.00	Gently rolling	Grazing	VI	Grazing	Private
		31	S½NE¼, SE¼	240.00	Gently rolling	Grazing	VIII	Grazing	Private
		32	NE¼NW¼, S½NW¼, SW¼, SE¼NE¼, NE¼SE¼, S½SE¼	480.00	Gently rolling	Grazing	VIII	Grazing	Private
		33	NW¼SW¼	40.00	Gently rolling	Grazing	VIII	Grazing	Private
37	3E	30	SE¼NW¼	40.00	Gently rolling	Grazing	VI	Grazing	Private
		32	SE¼SE¼	40.00	Gently rolling	Grazing	VI	Grazing	Private
		33	SE¼NE¼	40.00	Gently rolling	Grazing	VI	Grazing	Private
		34	NW¼NW¼, NE¼SW¼	80.00	Gently rolling	Grazing	VI	Grazing	Private

Totals by Counties	Total Acres	Acres by Land Capability Classes V	VI	VII	VIII
Chouteau	5,435.48	185.32	2,154.41	3,045.75	50.00
Glacier	953.45	31.66	885.11	36.68	
Hill	10,894.12	2,181.58	5,406.12	3,005.25	301.17
Liberty	6,973.65	34.41	4,913.48	1,975.76	50.00
Pondera	2,139.81	37.65	1,640.72	326.44	135.00
Teton	573.22		120.00	453.22	
Toole	11,708.22	225.72	7,453.94	2,862.12	1,166.44
Grand Total	38,677.95	2,696.34	22,573.78	11,705.22	1,702.61

1/ This table has been compiled from the individual tract classification reports of the Bureau of Land Management, Region III, Billings, Montana.

2/ See table 9 for detailed description of land-use capability classification.

Table 9 Description and definitions of land-use capability classes [1]

arable land

Grazing land

Class	Suitable for	Topography		Characteristic Native Vegetation	Soil Characteristics						Vulnerability to Erosion	Requisite Special Practices
		Slope (percent)	Character of Surface		Texture	Depth	Relative Salinity	Fertility	Productivity	Drainage		
I	Best type of farming land	0 to 2	Level or nearly level	Tall and mid-grasses, thrifty sagebrush, deciduous trees	Medium; Friable	12" or more; subsoil 36" or more	Negligible	High	Good to High	Good to Excellent	Low	None to minor
II	Farming with simple conservation practices	0 to 10	Irregular	Tall, mid, and short grasses; big sagebrush, deciduous trees	Light to Heavy; Friable	8" or more; subsoil 36" or more	Negligible to slight	Good to High	Moderate to High	Good	Slight to moderate	Minor to simple practices
III	Farming with complex conservation practices	0 to 10	Irregular	Tall, mid, and short grasses; big sagebrush, rabbitbrush, greasewood, coniferous, and deciduous trees	Light to Heavy; Friable	6" or more; subsoil 24" or more	Slight to moderate	Fair to Good	Moderate to High with management	Often poor; may be needed	Moderate to High	Complex practices essential
IV	Limited or occasional cultivation; best for permanent hay or pasture	0 to 15	Irregular or stony	Tall, mid, and short grasses; big sagebrush, rabbitbrush, greasewood, coniferous, deciduous trees, saltbush, winterfat	Sandy to Clay; porous or tight	6" or more; may have shallow hardpan	Negligible to critical	Poor to Good	Poor for row crops; best for hay and pasture	Not justifiable if needed	Moderate to High	Complex and intensive practices with good management
V	Range or woodland; farming only if irrigation water becomes available	0 to 5	Smooth to irregular; may be stony	Tall, mid, and short grasses; big sagebrush, rabbitbrush, greasewood, coniferous, and deciduous trees Density .3 or more	Light to Heavy; Friable	Good permeability to 24" depth	Negligible to moderate	Good to High	Moderate to High; not over three acres per A. U. M.	Usually not a problem	Low	None to minor
VI	Range and woodland only	0 to 20 (greater only on good soils)	Irregular to rough or rocky	Tall, mid, and short grasses; big sagebrush, rabbitbrush, greasewood, coniferous, deciduous trees, saltbush, winterfat Density .3 or more	Very Light to Heavy	Shallow to moderate; permeability excessive to poor	Negligible to moderate	Fair to Good	Light to Moderate; 3-10 acres per A.U.M.	Not practicable if a problem	Moderate	Proper management with simple restrictions
VII	Range and woodland with severe restrictions	0 to 100	Rough, rocky, or eroded	Tall, mid, and short grasses; big sagebrush, rabbitbrush, greasewood, coniferous, deciduous trees, saltbush, winterfat, mountain browse and annuals Density under .3	Any: May be tight clay or open sand or gravel	Often shallow, poorly developed	Negligible to critical	May be Poor	Poor to Light; over 10 acres per A.U.M.	Seldom a problem or not practicable	High	Proper management with complex restrictions and intensive practices
VIII	Watershed, wildlife and recreation	Generally steep	Extremely rough, barren or inaccessible	Often only annuals or scanty perennials; may be dense coniferous timber	Usually poorly developed	Very shallow or nil	May be excessive for plant growth	Usually very low	Usually very low or nil	Often poor; not justifiable if a problem	High (unless a swamp)	Complete protection

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[1] Adapted from Soil Conservation Service Standards, U. S. Department of Agriculture. Any one of the factors listed may classify a soil, factors determining classification singly, not necessarily in combination.

Table 10 - Description and definitions of Land Resource Condition Classes 1/

Principal Characteristics Affecting Condition of Range Resource

Condition Class and Map Symbol	Soils		Vegetation		
	Fertility	Erosion	Presence or absence of inferior species	Vigor	Relative Productivity
Excellent "E"	Good soil, limited by climatic conditions.	No apparent accelerated soil erosion by wind or water and no recent accumulation of silt or debris.	An absence of "invader" species of inferior utility.	Vigorous condition and good reproduction of the more valuable native vegetation.	Maximum (optimum) or near maximum production of high quality vegetation during normal years.
Good "G"	Slightly reduced soil fertility and loss of organic matter and tilth.	Only very minor accelerated sheet and shoe-string erosion or possibly some blowing and minor accumulations.	Slightly increased abundance of inferior species and "invader" plants.	Slightly reduced vigor and reproduction of desirable native vegetation; decreased density of vegetative cover.	Reduced production to between 75 and 90 percent of optimum.
Fair "F"	Moderately to severely depleted soil fertility; poor tilth.	Advanced accelerated erosion evidenced by some gullies, moderate sheet erosion and topsoil loss.	Predominance of less desirable plants. Decided increase of "invader" species.	Moderately reduced vigor and abundance and little or no reproduction of more desirable native vegetation; generally decreased density of perennial cover.	Reduced productivity to between 50 and 75 percent of optimum.
Poor "P"	Severely depleted soil fertility, poor tilth.	Excessive rapid runoff with heavy silt loam, greatly accelerated soil erosion evidenced gullying; topsoil may be lost, subsoil exposed.	Predominance of inferior perennial species or annual vegetation.	Greatly reduced vigor and density of perennial vegetation; most desirable native species may be absent or have high mortality; reproduction absent.	Productivity reduced below 50 percent of optimum.

1/ Under proper range management a high good condition would be the maximum condition attained. Excellent condition is limited to undergrazed, inaccessible and relict areas.

MISSOURI RIVER BASIN INVESTIGATIONS
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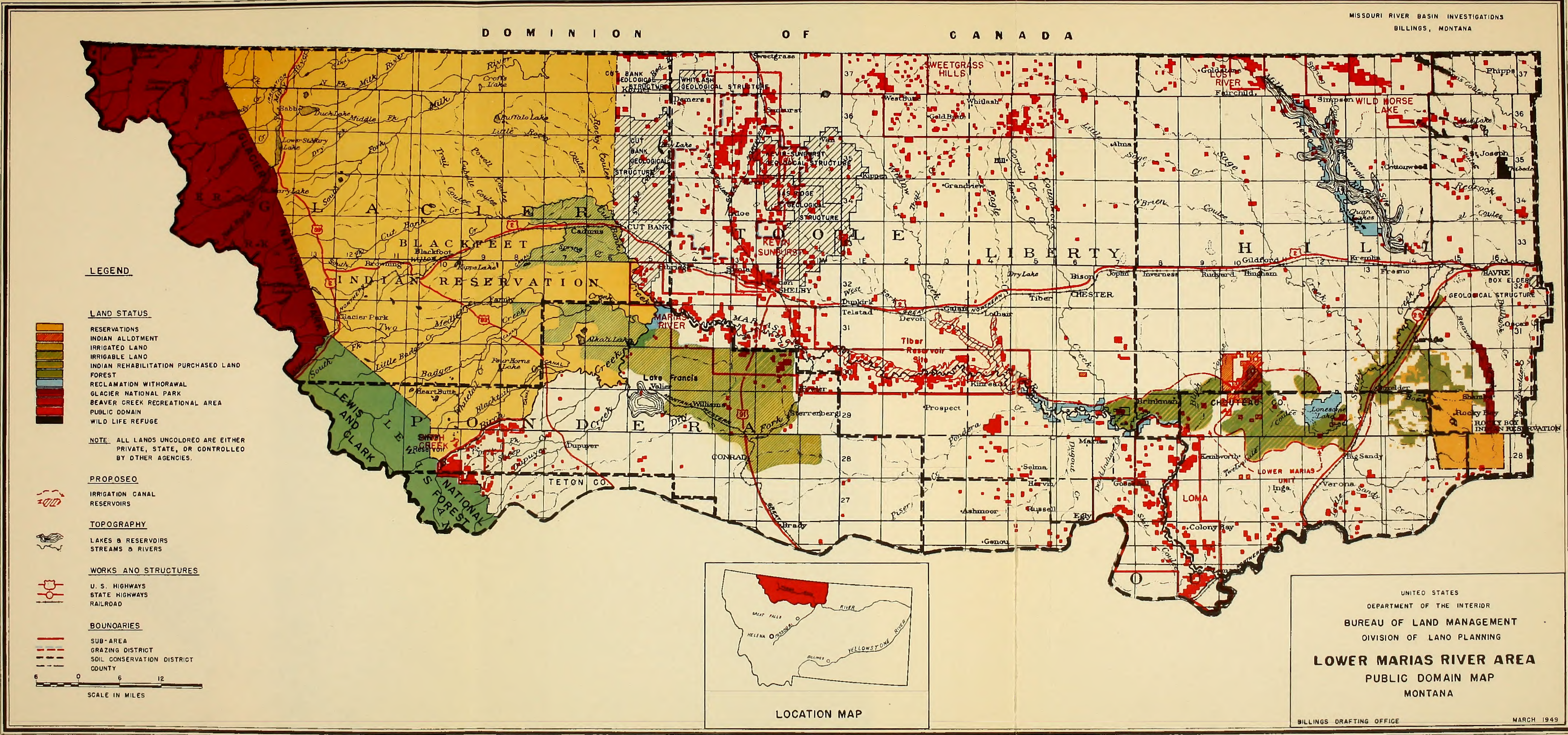

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
DIVISION OF LAND PLANNING

LOWER MARIAS RIVER AREA
PUBLIC DOMAIN MAP
MONTANA

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